



U.S. DEPARTMENT OF COMMERCE

BUREAU OF THE CENSUS



# STATE AND LOCAL GOVERNMENT

Special Studies No. 72

# State and Local Ratio Studies and Property Assessment





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LOCAL GOVERNMENT

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# **State and Local Ratio Studies and Property Assessment**

Issued August 1975



**U.S. DEPARTMENT OF COMMERCE** Rogers C. B. Morton, Secretary  
James L. Pate, Assistant Secretary for Economic Affairs

**BUREAU OF THE CENSUS** Vincent P. Barabba, Director



## BUREAU OF THE CENSUS

Vincent P. Barabba, Director  
Robert L. Hagan, Deputy Director  
Shirley Kallek, Associate Director  
for Economic Fields

GOVERNMENTS DIVISION  
Sherman Landau, Chief

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## INTRODUCTION

### THE ASSESSING ENVIRONMENT

Because ratios are an integral element in assessment administration in the United States, a natural introduction to discussing them is a summary of the total assessing environment.

#### Nature and extent of property taxes

That environment exists because of property taxes, levies within the power of 66,000 primarily local units of government throughout the country. Even though other revenue sources attract increasing attention, property taxes still dominate local structures, and still exert regressive burden effects despite a surge of relief measures and new insights into property tax incidence.

The dominance has been moderating proportionately in recent years, but annual revenue aggregates keep increasing in absolute terms, as table A indicates. Thus, for calendar 1974 revenue from local property taxes amounted to \$48.1 billion, \$15.6 billion higher than the amount collected 5 years earlier. That amount, \$32.5 billion, represented 86.0 percent of local tax revenue in 1969, 3.9 percent (or 3.2 percentage points) higher than the corresponding proportion of 82.8 percent represented by the \$48.1 billion for 1974.

The 5-year increase of 48 percent in annual collections underscores a new sensitivity to property tax burdens, and to who bears them. Among elderly families

in 1970, for example, real property taxes amounted to 15.8 percent of family income for those receiving \$2,000 or more per year. Corresponding percentages for groups under 65 were 18.9 percent and 2.9 percent, respectively.<sup>1</sup> One result has been an emphasis on tax relief, an objective that can be quite compatible with though not necessarily dependent on reforms which promote assessment uniformity.

#### Assessing—the function and its organizational setting

Amounts payable as property taxes result from the application of the applicable tax rate, or combination of rates, to assessed values. The public function which includes discovery, listing, and valuation of taxable property is called assessing. It is the appraisal of property on a mass basis. Such appraisal or assessing is the estimation of value as of a specified date at the "highest and best use" of the property involved. "Highest and best use" is generally regarded as the one most congenial to the site and likely to result in the optimum net return, actual or imputed, to the property owner from investment in the property. It may be and often is, but need not be, the same as "zoned use" and

<sup>1</sup> Special tabulation of U.S. Bureau of the Census, relating to data in Residential Finance Survey 1970 and quoted in *Property Tax Circuit Breakers: Current Status and Policy Issues*, report M-87, Advisory Commission on Intergovernmental Relations, Washington, D.C., February 1975, page 15.

Table A. Tax Revenue, State and Local Governments, Calendar Years 1969 and 1974

(Amounts in millions of dollars)

Item	State and local governments		State governments only		Local governments only	
	1969	1974	1969	1974	1969	1974
Total, all tax revenue:						
Amount.....	82,826	135,457	45,059	77,398	37,767	58,059
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0
Property taxes only:						
Amount.....	33,356	49,426	1,073	1,366	32,483	48,060
Percent of total.....	40.5	36.5	2.4	1.8	86.0	82.8

Source: Adapted from material compiled for *Quarterly Summary of State and Local Tax Revenue*, issues covering October-December 1969 (GT-69, No. 4, March 1970), and October-December 1974 (GT-74, No. 4, April 1975), U.S. Department of Commerce, Bureau of the Census, Washington, D.C.

"actual use." An important element in appraisal or assessing is judging the extent to which sales price in a given instance indicates, confirms, or otherwise conditions differences among the three uses as influences on market value.

Appraisal or assessing is the responsibility of a local official whose official title may be "assessor," "auditor," "lister," or something else (now "property appraiser" in Florida, "property valuation administrator" in Kentucky), depending on applicable law.

In more than 30 States the official is a county officer. Throughout New England, Michigan, Wisconsin, and in some places elsewhere, the assessor is a city or town (township) official.

Three types of assessing organizations predominate in the United States, as follows:

**County-type assessor system.** In this arrangement, initial official responsibility for determining the assessed value of all taxable property in the jurisdiction rests with the county assessor of the area having county-type functions. The county assessor system prevails totally in 31 States plus the District of Columbia, the official involved elected in some places and appointed in others.

In 1975 the county-type system applies to New York City and two other areas in New York State; a majority of areas in Iowa, Missouri, and South Carolina; and a minority of areas in Illinois, and Pennsylvania. Municipalities, school districts, and special districts in a few States may require an assessment function for their own purposes, independent of the initial official responsibility exercised by the county assessing officer. The county-type organization also includes State officials with county or county-type responsibilities in the State administration of local assessing, as in Hawaii, Montana (effective with 1973 legislation), and, beginning in 1975, Maryland.

**Township-municipal and county joint functioning.** In organizations of this type, township or municipal assessors, typically elective officials, exercise initial official responsibility, within guidelines or supervisory directions duly constituted county officers provide. This type of organization occurs throughout Indiana, Kansas, Minnesota, New Jersey, and North Dakota, and in those parts of Illinois, Iowa, Missouri, New York, Pennsylvania, and South Carolina not within the county-type classification above.

**Township-municipal functioning.** This type of organization exists in the six New England States (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), as well as in

Michigan and Wisconsin. In these eight States individual township or municipal assessors, elective or appointed, exercise initial official responsibility.

The basic unit in any of the organizational types specified above is the primary assessing jurisdiction. By definition, this is one of the contiguous territories (counties or something else) which together occupy the entire area of the State, with each of such units having initial responsibility for determining the tax base for general property taxes levied by local governments and, where applicable, the State government. In 1974 there were 13,516 such jurisdictions, as shown by State in table 1. Totals for Maryland and Montana still include counties (and Baltimore city in Maryland) as the primary assessing jurisdictions, even though assessors in Maryland have been State employees since July 1, 1974, and assessors in Montana agents of that State's Department of Revenue since July 1, 1973. Classification is based on interpretation of applicable statutes and responses to the survey questionnaires.

The 1974 total is about half the number of primary assessing jurisdictions existing 35 years ago, as table B indicates. In 1940 there were 26,304, two-thirds of which consisted of predominantly small townships. By 1965 combination and absorption of small districts had reduced the overall total to 14,496. Since that time almost 1,000 more jurisdictions have disappeared or merged with other units.

#### Objectives of assessing

Assessing is regarded as well done to the extent that values resulting from it are uniform, at the level prescribed in governing constitutional provisions and statutes. In one-third of the States, that prescribed level is market value, or something of the same meaning otherwise expressed. In the remainder of the States constitutional provisions or statutes, or both, specify one or more levels or relationships to market value for all or specified types of property. A summary of State provisions is contained in Appendix A, table I for realty and table 2 for tangible personalty. A further complication in recent years is the extent to which applicable law requires assessing at the value for an explicitly specified use, in addition to or as a substitute for assessing at market value. A summary of such laws is contained in Appendix A, in table 3.<sup>2</sup>

The level of value evident in assessed values of local jurisdictions is important for several reasons. Perhaps the most significant is the use of jurisdictional aggregates as bases for the apportionment of State aid, notably for public elementary and secondary education.

<sup>2</sup>For a recent study of such provisions, see *Use-Value Farmland Assessments: Theory, Practice, and Impact* by Robert J. Gloudemans, International Association of Assessing Officers, Chicago, Ill., 1974.

If each aggregate represents the same level of value, no distortion results from using it as a basis for calculating the jurisdiction's entitlement. If jurisdictional value levels differ, however, State aid distributions will be affected in ways contrary to their purpose unless aggregates are "equalized" to a common level prior to calculation of aid allocations.<sup>3</sup>

Within each jurisdiction it is also important for equity that individual values be uniform with respect to each other at the particular level in fact attained. Indeed, for

<sup>3</sup>The "relative fiscal capacity" indications evident from equalized values have received attention from policy makers and analysts for a long time. Some authorities believe that equalized values are a "better indicator than resident income of the relative fiscal capacity" for within-county areas, and perhaps for entire counties. See *Monitoring Revenue Sharing* by Richard P. Nathan, Allen D. Manvel, and Susannah E. Calkins, The Brookings Institution, Washington, D.C., 1975, especially chapter 6, pp. 135-177.

**Table B. Number of Primary Assessing Jurisdictions, by Type of Government: 1940, 1965, 1974**

Type of government	1940 <sup>1</sup>	1965 <sup>1</sup>	1974 <sup>1</sup>
All types.....	26,304	14,496	13,516
Counties <sup>2</sup> .....	1,956	2,512	2,555
Municipalities <sup>3</sup> .....	4,313	2,028	1,968
Townships <sup>4</sup> .....	17,625	9,953	8,991
Other <sup>5</sup> .....	2,410	3	2

<sup>1</sup>Source for 1940 data (48 States):

Assessment Organization and Personnel  
National (now International) Association  
of Assessing Officers, Chicago, Illinois,  
August 1941, page 38.

Source for 1965 data:

Primary Assessing Areas for Local Property Taxation, State and Local Government  
Special Study No. 50, U.S. Department of  
Commerce, Bureau of the Census,  
Washington, D.C., page 6.

Source for 1974 data:

Table 1.

<sup>2</sup>Includes county-equivalent cities, or city-county consolidations; parishes in Louisiana; boroughs in Alaska (1965, 1974).

<sup>3</sup>Includes city-equivalent towns, villages, and boroughs, as in Connecticut, New Jersey, North Dakota, Pennsylvania, South Dakota, and Wisconsin.

<sup>4</sup>Includes towns in New England States.

<sup>5</sup>For 1940 includes 859 city wards; 439 school and civil districts; 1,112 unorganized areas.

intrajurisdictional uses of values, uniformity at the level attained is deemed more important, at any given moment, than attainment of the level legally prescribed. If individual values are widely dispersed around a level instead of uniformly related to it, taxpayers owning properties essentially equal in market value will pay unequal amounts of tax, solely because of assessment disparities. Nowadays, of course, unequal amounts of tax may in fact be payable for properties equal in market value, even where no assessment disparities exist, as later discussion of burden differences and zero dispersion points out. The concern here, however, is tax difference attributable to dispersion, a factor amenable to amelioration within the assessing process. The distinction is important, for while equitable assessments remain an essential goal in many places, their achievement may still leave other equity issues unresolved.

Though both fall well short of perfection, the two indicators of market value with greatest acceptance are sales and appraisals. Of the two, sales prices are preferred whenever their frequency and discernible characteristics of comparability can support subsequent calculations and analysis. In the type of study now most familiar, sales prices and assessed values are, respectively, denominators and numerators for fractions expressed in percentage terms as assessment-sales price (also called "assessment-sales") ratios. They, or corresponding assessment-appraisal ratios, constitute the basic data for the "ratio studies" conducted by State and local governments in order to accomplish, or at least promote, interjurisdictional and intrajurisdictional assessment uniformity, for the purposes of aid allocation or assessment correction suggested above. Such ratio studies are the subject of this report.

They encounter conceptual challenge currently, even as general acceptance has increased. Because assessment-sales ratios "cannot be assumed to be normally distributed,"<sup>6</sup> the desirable measure of uniformity in any given grouping of such ratios is one implying no prerequisite assumptions about distribution. The standard deviation and its related coefficient of variation

<sup>4</sup>Gloudemans, Robert J., "Analysis of Census Assessment-Sales Data," International Association of Assessing Officers, Chicago, Ill., April 1975, page 15. This is a working paper prepared as part of a survey of assessment practices conducted by IAAO under contract with U.S. Department of Housing and Urban Development, Office of Policy Development and Research. For discussion of sales-assessment ratios, see "The Common Level of Assessment in Property Taxation," by a principal proponent, Mr. Pao Lun Cheng, National Tax Journal, March 1970, pp. 50-65; also by Mr. Cheng, "A Reference Model of Assessment Uniformity," paper presented at the 39th International Conference on Assessment Administration, International Association of Assessing Officers, Miami Beach, Florida, November 6, 1973; "Measurement of Valuation Accuracy," by James E. Reinhuth, Assessors Journal, October 1974, pp. 3-15; and "Sales Ratios and Property Tax Regressivity" by Theodore R. Smith, Assessors Journal, October 1972, pp. 25-42.

both rest on assumptions that the data being measured are normally distributed. When such assumptions are in fact correct, the standard deviation has the advantage of making possible mathematical testing for reliability. When the assumptions cannot correctly be made (as is more often the case with assessment-sales ratios), the coefficient of dispersion is deemed the better measure of uniformity, since nothing is assumed beforehand about the nature of the data distribution.

Some now advocate the use of sales-assessment ratios in order to identify the common or *de facto* assessment level. Briefly, the probability of any two parcels A and B being sold within the same percentage of respective fair cash values is held to be the same, with each relative price (sales price divided by fair cash value) thus part of a normal distribution measured by a common standard deviation. Relative price becomes a sales-assessment ratio if the applicable assessed value (denominator) is understood to be the product of fair cash value times the assessment level (called the "uniform assessment factor"). The reciprocal of the sample mean of observed sales-assessment ratios may then, under certain circumstances, be an unbiased estimate of the uniform assessment factor. This would give way however, in circumstances inconsistent with "reasonable" dispersion to use of the mode among ratios, or some other criterion, as a basis for identifying a *de facto* level and the extent of dispersion present. Though it has attracted considerable attention, the sales-assessment ratio has not become a common measure among most State and local ratio studies. The assessment-sales ratio and the coefficient of dispersion retain general acceptance.

#### Ratio Studies

On the basis of originating source, there are four types of property assessment ratio studies, those from the three levels of government, and those from the private sector. State government studies are associated with one or both of two major objectives, the achievement of equalization among local jurisdictions as a condition for State aid apportionment, and the promotion of more uniform assessed values among and within local assessing jurisdictions, as an achievement necessary for improved assessment administration and more equitable property taxation. Thus, State studies measure *de facto* assessment levels at a given moment, as a first step in adapting them for use in distribution formulas, or as a preliminary to corrective change in individual assessed values.

Studies by local governments are also aimed at expeditious correction of individual assessed values in particular neighborhoods or throughout a jurisdiction. They are likely to be specifically directed as well, however, at components of local administration: The discovery of property groups, classified by location or use, requiring an updated value calculation ("reappraisal" or "reassessment"), the evaluation of "mass

appraising" methods, and the measurement of assessor performance. Increasingly, local studies have become useful elements in the initial valuation process, in contrast with the "oversight" or "review" orientation of more traditional ratio study applications. In this context selling prices are the starting points in assessed value calculation, changing places with reproduction or replacement costs as the assessor's basic value indicating data. This presumes requisite frequency of sales among the property types affected, a constraint influencing if not inhibiting ratio studies of all kinds.

The only study of national scope is the quinquennial taxable property values survey carried out as part of the Census of Governments in each year ending with 2 or 7. A central purpose of this survey is presentation of as much empirical data as is possible on values assessed for purposes of local general property taxation, in compliance with title 13 of the U.S. Code. Since national and other aggregates of assessed value contain the influences of diverse assessment levels, it is helpful to any understanding or use of such totals to have an indication of what jurisdictional and other components of assessed value mean in relation to the level of the market. The ratio study provides such indications.

Privately conducted studies have become significant in some parts of the country, especially in places where States do not yet carry out this function. Activating sources may be industry groups, nonprofit research organizations, or for nonrecurrent studies, university institutes, or individual researchers.

Obviously there are great differences in purpose and scope. Within such variations, however, certain characteristics of ratio studies can be noted:

#### 1. Sensitivity to statistical principles.

This may be more aim than achievement, since individual studies range from minimum to adequate in resources used, and from elemental to esoteric in sophistication attained. There is, at the least, intuitive awareness of rudimentary statistical concepts. More ambitious efforts provide confidence intervals, regression coefficients, and the like for comprehensive classifications of data. In most studies the following are vital considerations:

- a. The need for representative data. If the entire universe of sales is not initially used, a pattern designed to yield a representative sample is recognized as essential. Sales and other transfers not qualifying as "arm's length" transactions are excluded.
- b. The importance of classifying data in reasonable ways, for discovery of disparities and for subsequent analysis.

- c. The relative merits and demerits of the various measures of central tendency, as indicators of de facto assessment levels.
  - d. Distinctions among dispersion indicators. While the coefficient of dispersion has widest acceptance, the standard deviation and the coefficient of variation are also getting increased attention, reflecting in part an aim to produce measurably reliable results, if possible.
2. Specified timing relationships.

Essentially the objects of study are sales prices (or appraisal estimates) as of a given date, and assessed values as of a given date. If the assessed values are those of the official valuation date immediately preceding sales occurrence, ratios will indicate the composite of two influences: Differences between the way in which the assessor and the market, respectively, account for the same value components, and differences between value components considered by the assessor and those considered by the market. A basic assumption is that the assessed value as of the valuation date immediately preceding the sale will incorporate all value components prescribed, directly or by implication, in applicable statutes. These will be the same as the value components in the market, unless statutes call for stated levels of full value, or values based on a specified existing use (e.g., open space), instead of highest and best use.

Thus, ratios ranging down from 100 percent become the governing statutory standards against which ratios expressing the relationships applicable for enumerated sales can be compared. To the extent that the latter ratios fall below the standard, they indicate things considered of value by the market but not by the assessor. For ratios at a level above the standard, the opposite is true.

Many State studies, and local studies as well, use assessed values as of the valuation date immediately preceding the sale. In some studies, however, both at State and local levels, the valuation date for the assessed values used precedes some sales and follows other sales, or is immediately subsequent to all sales. The report of the 1972 study in Minnesota, for example, states:

The assessment-sales ratio survey is based upon the latest assessor's estimated market valuation as related to the purchase price of properties sold for the most current 3-year period....The 1972 assessment-sales ratio study is based upon the purchase price of arms-length transactions for 1970-72 as related to the assessor's 1972 estimated market value. The assessment-sales ratio study, then...is a 3-year average of sale prices as related to the assessor's market value.<sup>5</sup>

<sup>5</sup> 1972 Real Estate Assessment/Sales Ratio Study, State of Minnesota Department of Revenue, St. Paul, Minnesota, page 9.

Whenever there is use of assessed values as of a valuation date subsequent to the sales price, the possibility exists that the sale itself has acted as a stimulant to, or is at least a factor in, a review of the assessed value involved, together with modification if needed. Thus the adjusted assessed value becomes the one used in the ratio study. To the extent that this happens, the study yields a measurement of a dual or multiperiod level rather than a static, preexisting assessment level. Some believe such results not only promote sensitivity among assessors to market influences but also present a longer run view of assessment levels, with benefit (in that view) to use of resulting ratios in aid distribution formulas. Others regard them as directly contrary to ratio study purposes.

The important point, perhaps, is that the unit of government conducting a study use the same basis for all jurisdictions involved.

#### Improvements in assessing

Ratio studies, long considered fundamental tools in any renascence of the property tax, occur today in a setting marked by equally fundamental developments.

The studies became necessary in the first place because actual assessment levels so often resembled those prescribed in statutes only by coincidence. The reasons for fractional assessing interlaced with dispersion are numerous. They include a tantalizing quest for "stable" values safely immune from the reaches of market volatility, and the "workload compromise" which substituted fractional assessing of jurisdictional segments over a multiyear cycle for the usually impossible job of annually assessing each taxable parcel as nominally required by law.

With technology available today, however, it has become feasible to accomplish that result, even in large jurisdictions. Moreover, it is also feasible to complete that still considerable task at the market level. Both objectives become realistic if there are enough human and other resources, including access to automated data processing, not only for record-keeping and sales processing functions, but for valuation as well. The latter can occur through use, practical only with computers, of a technique called multiple regression analysis (MRA).<sup>6</sup> This makes possible the use of known data (previously recorded realty sales, plus known characteristics of all such properties) to estimate unknown data (market values of unsold properties—i.e., most of those in any jurisdiction, in any given year). An

<sup>6</sup> For an excellent treatment see *The Application of Multiple Regression Analysis in Assessment Administration*, International Association of Assessing Officers, Chicago, 1974. Fundamentals are summarized in the introduction, by Robert J. Gloudemans.

essential preliminary in MRA is assembling a data file, including details of valid sales plus physical and fiscal information on property. The latter data items are "independent" variables which are "regressed" on the sales data, the "dependent" variables, to produce value estimates for unsold properties.

At present MRA works well for residential realty, where sales occur with sufficient frequency. Because such property constitutes the major single component of taxable realty in most places, assessing it takes a substantial amount of time. Any contraction in that amount makes time available for appraising more complex commercial and industrial parcels. MRA has, in several local jurisdictions, become the key to the value-predictive ratio study mentioned earlier. Such studies are part of arriving at assessed values rather than examining those already existing.

Annual assessing, buttressed by annual State and local ratio studies, can be expected to end dilemmas presently implicit in some of the statutory framework. Commonly the basis for assessed values is market value, or a percentage of market value, as of a stated date. At the same time, an assessment cycle<sup>7</sup> may be specified, extending over periods of 2 to 8 years in almost a third of the States. Indiana, for example, specifies "just valuation" as the basis, as of March 1 each year. Statutes in Indiana also provide for a reassessment cycle of 6 years. Though annual changes in assessed values are possible, the extent to which a given assessment roll contains values based on the market as of March 1 in any nonreassessment year can be well short of substantial, especially with markets as dynamic as those recently. Unless a State's "reassessment cycle" makes it possible for each assessed value to reflect market influences existing on each of the annual valuation dates within the cycle, full compliance with a market value assessment standard will be occasional at best. In any event, ratio studies are often vital elements in assessment cycles.

#### Burden differences and zero dispersion

As ratio studies have become more sophisticated, property taxes have become more complex. Assessed values for properties equal in market value may be identical (perfect uniformity), yet tax burdens attributed to the individual properties can differ substantially. The reason can be a burden influence other than dispersion, quite beyond ratio study effect.

Examples include differences in legal classification, property tax relief measures, and specific use emphasis. Classification distinctions affect realty in the eight

<sup>7</sup>An assessment cycle is the time period during which the assessing official responsible is expected to reassess, or review in detail (sometimes as a consequence of mandatory physical inspection), each taxable property in the jurisdiction.

States<sup>8</sup> which have, or eventually will have, separate, legally prescribed assessment levels for specified types of real property. Several additional States classify particular categories of personal property.

The most familiar property tax relief measure is the "circuit-breaker," now existing in half the States. Under a typical type, when property tax exceeds a specified percentage of taxpayer's income, a tax credit or rebate of the excess goes into effect. Thus, in Vermont, if the effective tax rate is 3 percent of sales price, and two identical homes are assessed at \$20,000 each (full market level, property tax \$600 each), the qualifying owner with (household annual) income of \$600 will pay a net of \$270 in property taxes, half the amount paid by a qualifying owner with income of \$10,800. Without the circuit breaker, such differences in burden would imply an assessed value difference of 100 percent for identical properties.

Specific use emphasis refers to requirements in the laws of 38 States (see Appendix A, table 3) for assessing at an actual, stated use (usually agricultural or "open space" use). Resulting values may be very different from what the property would be worth at "highest and best use."

#### STATE RATIO STUDIES

Findings concerning State ratio studies appear in tables 2 through 9. Observations about scope, characteristics, uses, and the like follow, all based on responses to a questionnaire survey conducted for this report, (augmented by telephone interview as deemed necessary) and on reference to applicable legal provisions and published materials.

#### General features

The survey reveals that ratio studies now occur on a regular basis in 36 States, as table 2 indicates. A study 6 years ago by the Bureau of the Census indicated that four additional States conduct studies, namely, Indiana, Missouri, Oklahoma, and South Carolina.<sup>9</sup> Presently Indiana and South Carolina collect data on sales and may also carry out appraisal activity, but they undertake no ratio studies on any regular basis.<sup>10</sup> In Missouri the State Tax Commission arrives at the equalized value of taxable realty and tangible personality among the counties (and the city of St. Louis) by using abstracts of

<sup>8</sup>The States are Alabama, Arizona, Illinois (Cook County), Louisiana (in 1978), Minnesota, Montana, Tennessee, and (by rate limit) West Virginia.

<sup>9</sup>Property Assessment Ratio Studies, State and Local Government Special Studies No. 52, U.S. Department of Commerce, Bureau of the Census, Washington, D.C., undated, pages 1 and 8.

<sup>10</sup>Legislative proposals providing for annual studies are receiving attention within each State.

assessed values and abstracts of sales prices supplied by county clerks and the St. Louis City assessor.<sup>11</sup> Ratio studies as such, however, do not take place at the present time. In Oklahoma, ratio studies were discontinued in 1970.<sup>12</sup>

What may have been the first study occurred in California in 1880 as part of an intermittent series which ended in 1909 and did not resume annually until 1955. Oregon and Virginia began this work in 1913, while Kansas, Kentucky, and Wisconsin followed two decades later. Only during the last 25 years, however, has significant expansion taken place. After New York and Washington initiated studies in 1951, eight States followed in the subsequent nine years, and 12 more States began during the 1960's. Since 1970 Alaska, Florida, and Nebraska have joined the group.

In 28 of the 36 States studies recur annually. Arizona and Ohio do the job every 6 months. The particular frequency is not necessarily related to the length of time over which sales are accumulated. This latter period is 1 year in each of 21 States. In Ohio it is 6 months. Five States prefer a sales period of 2 years, and eight others use 3 years. Pennsylvania reports that sales occurring within 5 years of each annual study are included.

Among eight out of 34 reporting States, ratios resulting from a study in a given year are averaged with those for one or more prior years, as a procedure related to certain uses of the ratios. The eight States are California, Illinois, Maryland, New Jersey, New York, North Dakota, South Dakota, and Wisconsin.

Most of the States conducting studies publish the results. The present survey revealed this to be the practice in 26 States (see table 2). An additional State, Iowa, publishes "in part," and seven States make results available to the public on request, by means of correspondence or something similar, but other than publication. These findings differ in some respects from those of the earlier Census study, in which 30 States are reported as publishing reports. Two of the States, Indiana and Oklahoma, do not conduct studies at present, while in two others, Georgia and Hawaii, results are now obtainable by the public, though not published.

Money spent for ratio study activity has increased since 1969, but the range among States which have figures available remains vast. In the present survey annual amounts spent varied from \$5,000 in South Dakota to \$5.5 million in New York. This contrasts

<sup>11</sup> Missouri Revised Statutes, Title X, Chapter 138, Section 138.390.

<sup>12</sup> The legal standard for assessment of realty in Oklahoma is now 35 percent of fair cash value, at the "highest and best use" for which the property "was actually used" or "was previously classified for use..." during the preceding year. Oklahoma Statutes, Article X, Section 8.

with variations 6 years ago extending from \$2,000, reported by West Virginia, to \$3 million in New York. Thirteen States reported that no figures were available for 1974, three more than those reporting in similar fashion for 1969. The following summarizes some of the larger amounts of cost incurred, as indicated by the two surveys:

State	1969	1974
Thousands of dollars		
New York.....	3,000	5,500
California.....	1,250	1,839
Florida.....	( <sup>1</sup> )	900
Pennsylvania.....	412	625
Washington.....	100	525
Georgia.....	200	325

<sup>1</sup> Did not conduct studies.

It is important that caution attend any interpretation of cost data reported. What they contain and what they omit will vary substantially among States. If the activity proceeds as part of an overall responsibility of the agency involved, it is not always possible to identify segments associated with ratio studies.

#### Types of ratios derived

Ratios like values invite classification on a variety of bases, for operational and analytical purposes. To indicate classification according to underlying status, respondents to the survey were asked to designate ratios derived as "officially found" or "unofficially calculated." Those officially found are ratios computed to satisfy prescribed requirements associated with publication, an aid formula, or similar purpose beyond internal analysis. Ratios unofficially calculated are those deemed helpful for internal analysis.

Within the above framework, respondents classified most ratios as officially found, as the summary in table C, and the details in tables 3 to 5, clearly demonstrate. In some States statutory prescription establishes the "official" status of the ratios affected. California, for example, requires that its Board of Equalization appraise a representative sample of locally assessable property in each county at least triennially to determine the "total full value" of such property. After opportunity for examination of preliminary tabulations by local assessors, and consequent adjustments, the board "shall publish the ratios of assessed to full value of all locally assessable property for each county and for the State."<sup>13</sup> It should be noted that California considers

<sup>13</sup> See California Statutes, Revenue and Taxation Code, Sections 1815 to 1903, especially 1819. The legal standard for assessed value in California is 25 percent of full value (section 401).

only the overall ratios for each county, and for the State, as officially found (see tables 3 and 5). Other ratios, for specified property use categories, are classified as unofficial.

In Kansas, statutes go further. Each year the director of property valuation "shall determine, as nearly as possible, the sale price of each tract or piece of real estate and the ratio of the assessed valuation to the sale price..." Then the director arrives at the average ratio for, respectively, urban realty, rural realty, and "each classification of property and for all classes combined in each county." The director's annual report, "published as required" includes county ratios of urban...and rural real estate" and for the other classifications of property used in the State.<sup>14</sup>

**Table C. Indicated Status of Ratios for Selected Classifications, by Numbers of States: 1974**

Classification	Offi-cially found	Unoffi-cially calcu-lated
Jurisdictions:		
State.....	13	6
Counties.....	26	3
Municipalities.....	19	4
School districts.....	7	1
Townships.....	11	1
Area locations:		
Urban, entire area.....	12	1
Neighborhoods.....	5	1
Suburban.....	4	1
Rural.....	11	1
Property use categories:		
All realty, as one group.	15	1
Residential, all.....	22	2
Single-family.....	16	4
Multifamily.....	16	4
Commercial.....	25	4
Industrial.....	21	4
Agricultural.....	24	3
Vacant land.....	18	5
Timberland.....	5	3
Mineral rights.....	2	3
Other.....	6	-
Personalty.....	6	3
Public utilities.....	6	2

On the other hand, Minnesota (tables 3 and 5) exemplifies a situation where ratios are considered officially found, within the implications of duties

assigned the State agency involved. In Minnesota the equalization aid review committee<sup>15</sup> is empowered to "review the assessed valuation of the districts of the State." If "reasonable evidence" exists that assessed values are not based on market values, the department of taxation can take the steps necessary to ascertain the market value. The department, which is the agency conducting ratio studies, reports the assessed value of each county annually to the committee.

Utah provides another example where some of the ratios are considered officially found, without specific reference to such ratios in the statutes. The latter contain general powers and duties of the State Tax Commission. Thus, classifications as to status in tables 3 to 5 reflect interpretations based on assigned responsibilities, as well as explicit statutory content.

Among jurisdictional classifications, county ratios are the most frequent, resulting from studies in 29 States. There are ratios for municipalities in 23 States, for townships in 12 States, and for school districts in 8 States.

A third of reporting States provide ratios on an urban and rural basis. Four among that group carry the urban coverage down to individual neighborhoods. As the impact of computerization intensifies, this intrajurisdictional concentration is likely to spread further.

As table 5 indicates, major property use classifications for which States compute ratios include residential (24 States), commercial (29 States), industrial (25 States), agricultural (27 States), and vacant land (23 States).

#### Characteristics and methodology

State ratio studies use three types of value indicators: sales prices, appraisals, or a combination of the two. A sales price is the amount, expressed in terms of money, which the transacting parties mutually agree the property in question is worth at the time of ownership transfer. In the usual absence of anything better, it is thought to be the best indication of market value.<sup>16</sup> Sales prices comprise the basic data for ratio studies in 19 States, as shown in table 6. An appraisal is an opinion from a specialist of the amount of money which represents market value of the property involved.<sup>17</sup>

<sup>15</sup> Consists of commissioners of education, administration, and taxation. See *Minnesota Statutes, Chapter 124, Section 124.212*.

<sup>16</sup> Market value of property is generally regarded as the amount of money which a willing, knowledgeable buyer would, in practical circumstances, pay to a willing, knowledgeable seller to acquire the property in a transaction free of duress for either.

<sup>17</sup> The appraisal is usually in writing. It incorporates attention to all factors and approaches held to be relevant to the circumstances, including what the property cost, what loss in value (depreciation) it has sustained, if any, what income it will earn, and what sales prices similar properties have commanded.

<sup>14</sup> Kansas Statutes Annotated, Section 79-1437.

Three States use appraisals, not sales prices, in conducting ratio studies. They are Arkansas, California, and Florida. In another 14 States which participated in the present survey, a combination of sales prices and appraisals is used. Resort to appraisals often comes about because sales of particular types of property do not occur frequently enough to sustain valid statistical inferences. This is especially the case with commercial and industrial realty of specialized or composite types rarely transferred and in any event, not easily separated from total business values that may include machinery, fixtures, and goodwill.

Most State studies are, in practice, cooperative efforts of State and local officials, at least in data assembly phases. As table 6 indicates, local recorders and assessors often provide the sales prices, sometimes in accordance with procedures specified by statute. This is one among several activities involving assessment administration which demonstrate that its enhancement is usually a product of State-local cooperation.

Nineteen of the 36 States conducting studies report initial use of all sales occurring during the survey period. Seven others began, in their most recent studies, with a sample of sales ranging from 20 percent to 95 percent. Unless statutes compel use of all sales (as in Kansas, for example), the choice for any State is associated with the objectives sought and the resources available.

There is considerable agreement among the State agencies about which sales to exclude immediately, as table 7 indicates. Anything qualifying as a forced sale, for example, is not deemed an "arm's length" transaction. Thirty-two States report that such sales are removed. Transfers between relatives are in the same category, the rationale being that any price shown will probably differ from that likely in a sale between unrelated parties. Certain States indicate in procedural memoranda that sales involving governmental units and nonprofit private organizations may in fact be valid value indicators. The analysis necessary to confirm this is undertaken, however, only if other types of sales are insufficient for study purposes.

Screening of sales commonly occurs at three or more stages during the study. The earliest is the enumeration period itself. Nineteen States at least begin the elimination of unrepresentative sales here. Fourteen continue the process during the second stage, verifying sales prices. Minnesota, New Hampshire, and Pennsylvania initiate screening when price verification occurs. There is further elimination during statistical processing in 23 States.

It is important to verify prices whenever possible, but funds available do not always permit a canvass of transacting parties by questionnaire, telephone, or personal interview. Fourteen States do in fact send questionnaires to one of the parties (usually grantee). Six of

these States (Idaho, Nevada, New Jersey, North Dakota, Oregon, and South Dakota) also interview the parties, in person or by telephone, if it is necessary to verify sales prices.

One verification method of increasing significance is recourse to transfer tax and/or recordation documentation, now a possibility in 23 of the 36 States conducting ratio studies (see tables 6 and 17). A frequent requirement of real property transfer taxes, discussed in greater detail below, is presentation of an affidavit or declaration containing the sales price, at the time the deed of conveyance is recorded. In some States the document takes the form of a legal affidavit, or sworn statement, subjecting whoever signs it to penalties for perjury for any false statements it contains. In other instances the declaration required does not qualify as an affidavit, but may nevertheless give rise to penalties specified by statute for any violation of requirements.

#### Nature of the sample

Ratio study source data comprise only a small part of a value-indicating universe, even when all sales are initially included. The number of properties being sold in a given time period is a small fraction of the Nation's property inventory. A recent estimate, based in part on Census of Governments data from 1956 to 1971, placed the annual turnover rate "between 5 to 10 percent of total parcels".<sup>18</sup>

Except in Arkansas, California, and Florida, ratio studies depend entirely or primarily on sales, and thus begin with the assumption that properties which sell, a market-selected group, reveal information useful to judgments about the universe of taxable property. Sales are a sample of that universe, or at a minimum, that part of the universe subject to market transactions. Even in the three States cited, of course, sales are a very important factor in the studies, since appraisals reflect attention to all value approaches, beginning with any market data available.

As to any sales study using less than all sales, the source data in effect represent a sample of a sample, in terms of the taxable base. Appraisals supplementing the sales used constitute a sample representing that portion of the taxable base (e.g., certain commercial and residential property) rarely transferred as part of a usable sale. States which use appraisals only commonly provide for coverage cycles, with appraisals carried out in a portion of local jurisdictions each year.

<sup>18</sup> Land Title Recording in the United States: A Statistical Summary, State and Local Government Special Studies No. 67, U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Agriculture, Economic Research Service, Washington, D.C., March 1974, page 15.

### Selection criteria

In every State the most basic condition influencing the size and composition of the data base used is the amount of funds available. The budgetary constraint is a fundamental element in all studies, in some instances inhibiting the extent to which the State involved can comply with statutory directive (as in Arkansas, see below).

Technically, sample size and selection criteria involve stratification. This may occur on the basis of assessed value ranges, property use categories, location, or other factors, including some combination of the foregoing. Because State studies tend to be "individual" in these respects, the following summaries are presented, based on responses to this survey.

### Arkansas

By statute, the Assessment Coordination Division has responsibility for appraising "not less than three percent of the total number of (taxable) real properties in each classification in each county."<sup>19</sup> Classifications include residential, commercial, industrial and miscellaneous. The number of taxable parcels of real property in Arkansas approximated 1,400,000 in 1974.

In fact, resources permit 3 percent coverage for one-fifth of the 75 counties each year. There are 17 field appraisers among a staff of 28 people. During the noncoverage parts of the 5-year cycle, responsibilities for counties affected are carried out by reference to the most recent (i.e., "active") appraisals on file. In each of 1973 and 1974, the appraisers completed approximately 13,500 realty appraisals. In addition, for 1973 appraisers and other staff checked 33,488 personal property assessments, conducted one assessor training school, and provided consulting assistance to local assessors as requested. Total cost for that year (1973) amounted to \$470,000.

A summary of active appraisals follows (they include those completed for the 1973 study):

Item	Appraisals
Total.....	83,610
Realty.....	50,162
Residential.....	16,047
Commercial.....	1,581
Industrial.....	203
Rural (including agricultural)	26,245
Urban (generally, nonagricultural property having some urban and some rural characteristics).....	6,086
Personality.....	33,448

### California

The State Board of Equalization completes appraisals in one-third of the State's 58 counties each year. A full value estimate is then projected for 1, 2, or 3 years, for comparison with current total assessed value. For several purposes, 3-year averages of the quotient of statewide ratio divided by county ratio are used.

The board stratifies assessments within assessed value ranges, nine on the "secured roll"<sup>20</sup> (real property) and nine on the "unsecured roll." There is a separate stratum for developed petroleum mineral rights. Sample size determination for each county results from consideration of five factors:<sup>21</sup>

1. Distribution of assessed values among the several strata, as shown in prior survey for the county
2. Relative amounts of dispersion among assessed values and appraised values, and the ratio of total market value to total assessed value in each of the strata, all as shown in prior survey for the county
3. Cost of appraisals in each strata
4. Total funds available
5. Desired level of reliability in final results, in comparison with those from prior survey for the county.

For each county the optimum size sample is distributed among the strata in accordance with a formula incorporating three elements for each stratum: The number of assessed values, measures of variance for appraisals and assessed values (from prior survey), and the square root of the relative cost factor (also from prior survey). The second and third elements are separately used for calculation of a weighting factor.

The cost of the study, including the above appraisals, amounted to \$1,838,500. Sample sizes ranged from 186 properties in Inyo County to 441 properties in Los Angeles County.

<sup>20</sup>"Secured roll" is that part of the roll containing State assessed property and property the taxes on which are a lien on real property sufficient, in the opinion of the assessor, to secure payment of the taxes. The remainder of the roll is the "unsecured roll." California Revenue and Taxation Code, Section 109.

<sup>21</sup>Material from Procedure 105, California State Board of Equalization, Intercounty Equalization Division, Sacramento, 1974.

<sup>19</sup>Arkansas Statutes, Section 84-477.

Appraisals completed as part of the study for the year ending June 30, 1974, follow:

Item	Realty	Personality
All types.....	4,776	1,162
Residential.....	1,986	129
Single-family only...	1,663	-
Commercial.....	683	508
Industrial.....	335	263
Agricultural.....	922	195
Vacant land.....	598	-
Other.....	252	67

- Represents zero or rounds to zero.

<sup>1</sup>A total of 5,081 appraisals was involved, some of which included both realty and personality.

#### Florida

In accordance with specific statutory directive,<sup>22</sup> the Assessment Ratio Study Division in the Office of Auditor General appraises property in one-third of the State's 67 counties each year. The division completed work in 21 counties in 1974 (see table D). Twenty-five counties will be covered in 1975, and the remaining 21 in 1976.

Sample is based on stratified random selection, with previous year studies providing data supporting reliability calculations. Within each county, one stratum is reserved for high value properties, the threshold value distinctive for each county. Other strata are based on property use. Characteristics of individual strata may differ for each county. For the 1-year study period ending June 30, 1974, the division appraised 9,868 properties in 21 counties, as shown in table D. Cost of the work for the year ending June 30, 1974, amounted to \$900,000.

#### Maryland

Appraisals supplement sales. For its 1974 study, the Department of Assessments and Taxation included 7,000 sales. Appraisals were completed for agricultural properties (assessed on a use basis), and for most of the commercial and industrial properties included in the survey. Some residential appraisals also occurred, to the extent time and money were available. A summary of realty appraisals completed follows:

Residential .....	770
Commercial and industrial ....	960
Agricultural .....	784

Allocable costs, for the study completed between February and October 1974, are estimated at \$55,000.

#### Minnesota

The Department of Taxation supplements sales with appraisals, to assure representation for properties infrequently sold. The department stratifies each local roll by assessed value and property use category. For each classification, there must be included three or more properties (sales and appraisals), or at least 15 percent of assessed value (market level) total for the classification. Study for 1974 cost \$235,000.

#### Nevada

Department of Assessment Standards of State Tax Commission uses sales and appraisals. In each of three categories (urban, rural, and special), the appraisal sample should constitute at least 0.6 percent of the total number of properties in the category. Cost of 1974 study has been estimated at \$19,000.

#### Washington

Department of Revenue supplements sales with appraisals of properties infrequently sold. In some counties, the department uses appraisals only. Appraisal work occurs in one-third of the State's 39 counties each year. Appraisal sample is selected randomly after stratification, within assessed value ranges, for each county. For the 1974 study the department completed 2,057 realty appraisals and 1,742 personality appraisals. Cost of the study approximated \$525,000.

#### Statistical measures derived

Any one among three ratios commonly results from State studies to indicate a de facto assessment level. The first is the arithmetic mean of the individual ratios, each of which expresses the relationship between an assessed value and a sales price, or an assessed value and an appraisal estimate. The second is the median ratio, the one with the middle value in an array of individual ratios arranged from lowest to highest. Finally, there is the aggregate ratio, or ratio of aggregate amounts. This is the quotient which results from dividing the sum of assessed values for all properties included in the study, by the sum of market value indicators (sales prices, appraisal estimates, or a combination thereof) for the same properties.

As table 8 indicates, the following 16 States compute all three of the measures of central tendency described above:

California	Minnesota	Oregon
Georgia	Montana	Pennsylvania
Idaho	Nebraska	South Dakota
Iowa	Nevada	Virginia
Kentucky	North Dakota	Washington
		Wisconsin

<sup>22</sup>Florida Statutes, Section 195.096.

Table D. Number of Parcels, Appraisals, and State-Calculated County Ratios, Selected Counties, State of Florida: 1974

County	Entire county					Strata detail, by type <sup>1</sup>			
	Number of taxable parcels	Number of appraisals	Number of strata	County ratio (per cent) <sup>2</sup>	Confidence interval (+ per cent) <sup>3</sup>	Ranges of assessed value <sup>4</sup>		Residential	
						Number of parcels	Number of appraisals	Number of parcels	Number of appraisals
Alachua.....	34,454	456	4	83.0	1.7	146	45	27,378	192
Broward.....	328,219	639	5	84.4	1.7	297,677	439	(X)	(X)
Collier.....	137,216	556	5	90.4	4.3	530	89	48,311	193
Duval.....	183,289	510	5	87.5	3.7	179,932	480	(X)	(X)
Franklin.....	8,072	423	4	88.4	4.7	8	8	6,480	192
Gadsden.....	14,780	564	5	85.6	5.5	3	3	8,798	245
Hamilton.....	6,039	503	5	68.6	2.9	5	5	2,647	195
Highlands.....	51,390	463	6	78.8	3.6	16	7	45,776	188
Holmes.....	7,790	421	3	46.2	4.3	(X)	(X)	(X)	(X)
Indian River.	43,943	521	5	89.7	1.9	246	85	14,305	166
Jefferson....	5,293	384	5	83.3	3.3	16	8	2,282	145
Lafayette....	3,344	400	3	76.7	3.3	(X)	(X)	(X)	(X)
Lee.....	264,023	419	5	74.5	6.7	295	51	229,403	245
Nassau.....	15,987	527	5	93.1	2.1	19	10	9,982	191
Osceola.....	33,030	498	5	90.7	3.8	105	45	24,554	147
Palm Beach...	174,471	500	4	75.8	3.3	1,856	128	115,922	197
Pasco.....	77,823	445	4	72.8	2.6	344	36	57,145	190
Pinellas.....	256,445	458	5	75.9	1.7	1,431	42	184,158	194
Santa Rosa...	25,779	453	5	73.3	4.1	149	19	17,701	195
Union.....	2,515	316	3	76.2	3.9	(X)	(X)	(X)	(X)
Walton.....	(NA)	411	4	(NA)	(NA)	17	17	(NA)	195

Note: Use of table authorized by Director, Assessment Ratio Study Division, Office of the Auditor General, State of Florida, Tallahassee, 32302.

NA Not available.

X Not applicable.

<sup>1</sup>Characteristics of each stratum may be different for each county.

<sup>2</sup>For each stratum, the sum of assessed values is divided by the sum of appraisal estimates to produce a "weighted mean." Each "weighted mean" becomes a component of the county ratio via a weighting procedure based on the proportion of stratum total assessed value to county total assessed value. County ratios are published.

<sup>3</sup>Level of confidence, 95 percent (i.e., chances are 95 out of 100 that the ratio for each appraisal will be within, plus or minus, the percentage shown for the weighted mean).

Table D. Number of Parcels, Appraisals, and State-Calculated County Ratios, Selected Counties, State of Florida: 1974—Continued

County	Strata detail, by type <sup>1</sup> --Continued							
	Agricultural		Nonagricultural or other acreage		Splits <sup>5</sup>		Other	
	Number of parcels	Number of appraisals	Number of parcels	Number of appraisals	Number of parcels	Number of appraisals	Number of parcels	Number of appraisals
Alachua.....	(X)	(X)	(X)	(X)	895	30	6,035	189
Broward.....	(X)	(X)	(X)	(X)	30,542	200	(X)	(X)
Collier.....	(X)	(X)	76,623	148	8,913	30	2,839	96
Duval.....	(X)	(X)	(X)	(X)	3,357	30	(X)	(X)
Franklin.....	(X)	(X)	(X)	(X)	311	29	1,273	194
Gadsden.....	2,740	143	(X)	(X)	1,231	30	2,003	143
Hamilton.....	2,497	191	(X)	(X)	265	30	625	82
Highlands....	2,791	144	(X)	(X)	1,131	30	1,676	94
Holmes.....	3,448	188	3,704	203	638	30	(X)	(X)
Indian River.	(X)	(X)	23,364	144	2,900	30	3,128	96
Jefferson....	2,210	135	(X)	(X)	450	29	335	67
Lafayette....	1,886	190	(X)	(X)	188	21	1,270	189
Lee.....	(X)	(X)	(X)	(X)	22,933	30	11,332	93
Nassau.....	2,088	149	(X)	(X)	1,185	30	2,713	147
Osceola.....	2,676	146	(X)	(X)	2,175	30	3,540	130
Palm Beach...	(X)	(X)	(X)	(X)	2,475	29	54,218	146
Pasco.....	(X)	(X)	(X)	(X)	1,163	24	19,171	195
Pinellas.....	(X)	(X)	53,319	95	1,220	30	10,317	97
Santa Rosa...	2,980	73	(X)	(X)	1,221	29	3,728	137
Union.....	1,167	100	(X)	(X)	204	25	1,144	191
Walton.....	(NA)	149	(NA)	(NA)	(NA)	(NA)	(NA)	50

<sup>4</sup>May include more than one stratum. Detail follows (number of appraisals as specified):  
\$0,000 or less..... Duval (48)  
\$5,000 to \$50,000..... Duval (293)  
\$10,000 or less..... Broward (97)  
\$10,001 to \$50,000..... Broward (194)  
\$50,001 to \$200,000..... Broward (99), Duval (93)  
\$100,001 or more..... Pasco (36), Santa Rosa (19)  
\$120,001 or more..... Franklin (8)  
\$200,001 or more..... Alachua (45), Broward (49), Collier (89), Duval (46),  
Highlands (7), Indian River (85), Jefferson (8), Lee (51),  
Nassau (10), Palm Beach (128), Pinellas (42), Walton (17)  
\$240,001 or more..... Hamilton (5)  
\$300,001 or more..... Gadsden (3)  
\$400,001 or more..... Osceola (45)

<sup>5</sup>"Splits" are parcels resulting from divisions during the year specified.

Thirty-one of the 36 reporting States calculate aggregate ratios, five more than the number which includes the arithmetic mean as a basic result. Median ratios are used in 24 States.

The measure of intrajurisdictional uniformity most popular is still the coefficient of intra-area dispersion. Mathematically, this is the quotient produced from dividing the average deviation from either a mean or median ratio, by that ratio. Twenty-one States produce this result for the local jurisdictions. In 12 of the States the coefficient is calculated on the basis of the median ratio in the same way as that used by the Bureau of the Census for its nationwide survey. In the other nine States, the intra-area dispersion coefficient is calculated on the basis of the mean ratio.

In Kansas, statutes require that the director of property valuation order a reappraisal, within any county affected, for all property in any classification shown, from ratio study findings, to have a "coefficient of deviation" (same as coefficient of intra-area dispersion) greater than 20.

The analytically useful standard deviation (square root of the variance) is a product of ratio studies in 22 States. Fifteen of these also compute the coefficient of intra-area dispersion. As mentioned earlier, the standard deviation is best regarded with caution when the group of ratios being studied is not normally distributed.

One statistical measure gaining adherents as tax burdens increase is the price-related differential, sometimes called an index of regressive assessment. This differential is the quotient which results from dividing the mean ratio for a given group of sales by the aggregate ratio for the same group. An area differential ratio exceeding 100 percent indicates that relatively high value properties are likely to have lower ratios than relatively low value properties. The converse is true for price-related differential ratios at 100 percent or below. In the present survey 10 of the 36 States compute the price-related differential. Recently interest in this measure has increased, specifically in terms of developing, around 100 percent, zones of tolerance which could be accepted in a "satisfactory assessment" profile.

#### Uses of State ratio study findings

As table 9 indicates, States use ratio study findings in two basic ways: to change individual assessed values, or to change aggregates of assessed values. The first usually relates to a review function, the second to an equalization function. In an alternative interpretation, both are involved with equalization, the first with intrajurisdictional effect (largely or exclusively), the second with interjurisdictional effect.

A major interjurisdictional equalization objective is equitable apportionment of State aid to help local school districts finance public elementary and secondary

education. This is the aim in 27 of the 36 reporting States. Other aid apportionment objectives include State assistance to local governments for health, welfare, highways, public safety, and libraries (other than those affected by school aid grants). School aid distribution formulas now get close scrutiny, in the wake of school finance litigation.<sup>23</sup> There is now a disposition among States to examine existing school aid plans carefully with a view to changing the local property tax component of school district revenue.

State ratio studies also influence selection of reappraisal area priorities (in 23 States) and the evaluation of reappraisal projects in local jurisdictions (in 15 States). Reappraisal planning, for example, has been the dominant ratio study purpose in Utah.<sup>1</sup>

Use of State ratio study findings by individual taxpayers for appeal purposes has become a possibility in 17 States, according to survey responses. The possibility carries no necessary implication, however, that an appellate review body need accept such findings in a controversial case.

The entire question of how taxpayers, and assessors, use State-produced ratio findings is described by several respondents as "not yet encountered." In California, where it has been, the following summarizes what occurs:

Relevance of State ratio findings. The State Board's findings as to the average assessment ratio of locally assessed taxable property in each county are published annually before the close of the period allowed for the appeal to the county equalization agency for reduction of particular assessments. These Board findings may be relied upon in such proceedings, since under the 1966 statute the equalization agency must find the property's full value and then apply the lowest of:

- (1) 25 percent,
- (2) 115 percent of the Board's ratio findings for the county, or
- (3) "the ratio of assessed to full cash value of all property in the county (both locally and State assessed) established without reference to the Board's ratio for the county."

<sup>23</sup> Major cases: *Serrano v. Priest*, No. 938, 254, California Superior Court, April 10, 1974; *Serrano v. Priest*, 487 P 2d 1241 (1971);

San Antonio Independent School District v. Rodriguez, 411 U.S. 1, 93 S. Ct., 1278 (1973);

*Robinson v. Cahill*, 62 N.J. 473 (1973); *Shofstall v. Hollins*, 110 Arizona 88, 515 P 2d 590 (1973).

The quoted third alternative is designed to satisfy the constitutional mandate of complete rather than only substantial uniformity, but calls for evidence that is so difficult or costly to develop that it has only rarely been invoked in taxpayer appeals.<sup>24</sup>

### RATIO STUDIES BY LOCAL JURISDICTIONS

Ratio studies conducted by local jurisdictions have become familiar internal "working" tools in several places. They constitute part of the assessor's administrative and technical procedures, associated with valuation, review, and workload planning. Usually they are not required by specific statutory directive, but flow directly from the local need for continuing sensitivity to the market and other value indicating sources. Discussion that follows is based primarily on survey responses, correspondence, and telephone interviews.

At the same time there are similarities with the more institutionalized State studies, many of which use locally assembled sales data. Survey responses indicate this to be what happens in at least 12 among the 22 States in which there are no studies by local jurisdictions. Like State efforts, many local studies today possess statistical integrity. Standards for acceptance and rejection after initial assembly of sales closely resemble those at the State level. There are also deliberately planned time sequences for study activity elements, in some places as part of a "continuous" study framework. There are differences between State and local studies, however, as the following summary of survey findings among respondents from 26 States (including as a State the District of Columbia) makes evident.

#### General features

Among jurisdictions responding, Washington, D.C., began studying assessed values and sales price relationships in 1912, well before any of the others. In a sense Washington is atypical, since it has characteristics of a State and a city-county. Its ratio work, however, definitely has local character, including comprehensive coverage of individual neighborhoods (assessment areas) within the city.

As table 10 indicates, almost two-thirds of the other local jurisdictions responding have begun studies since 1960. In New York City the first study took place in 1937, 11 years before the city of Milwaukee (Wisconsin) started, in 1948.

Most local studies occur annually, though approximately one-fifth of the jurisdictions work on a semi-annual basis. Only five of responding local jurisdictions report that ratio study results are published, in one instance (Detroit) by display on individual tax bills. Other jurisdictions which publish findings are Douglas County (Nebraska), Fairfax County, and the city of Richmond in Virginia. Thirty jurisdictions in 22 States make ratio study data available to the public but do not publish the findings. In 19 places in eight States the data are not released for public use.

More than half of 51 responding local jurisdictions produce ratios for each of the neighborhoods within their boundaries (see table 11). City and/or township ratios also result in more than half of the local areas. Exclusively suburban and rural coverage is less extensive. There are separate school district ratios in seven jurisdictions.

Predictably, the single-family residence predominates as a property use identified in specific ratios. Four out of five jurisdictions in 26 States report derivation of ratios for homes, as table 12 indicates. More surprising are the relatively large numbers of cities and counties which calculate ratios for commercial and industrial properties. These use types are widely regarded as subject to market transactions on too seldom a basis for significant value indicating inferences. In the present survey, however, commercial and industrial ratios result in 43 and 39 places, respectively, out of a total of 56. Only 32 of the 56 jurisdictions compute ratios for vacant land, a use category commonly associated with relative underassessment.

The "internal" nature of local studies is apparent from the substantial number of locally specific ratio classifications encountered (see table 11). Eighteen jurisdictions calculate ratios on the basis of property types appearing in the local appraisal manual. Orange County in California has ratios by "map books," while Kansas City uses postal zip code areas as a ratio classification.

#### Characteristics and methods

All of the 54 local jurisdictions responding to this part of the survey (see table 13) used sales as a value indicator, 40 of them exclusively. Appraisals for local studies, reported by 14 jurisdictions, are essentially supplemental, incorporating the use of any market information available for the type of property involved (e.g., rental income, occupancy ratios, operating expenses, construction costs). Unlike appraisals completed for State studies, those in local situations will presumably be the work of the same specialists who supply the local assessed values. Such appraisals are, in effect, reassessments, undertaken to assure responsiveness to whatever any value indicator (including the market) may reveal about properties not transferred.

<sup>24</sup>The Property Tax in a Changing Environment - Selected State Studies, Information Report No. M-83, Advisory Commission on Intergovernmental Relations, Washington, D.C., March 1974, p. 66.

All sales that do occur are likely to be initially included. This is the practice in 36 of 54 instances shown in table 13. Supplemental screening eliminates sales on the basis of criteria essentially similar to those used by States. As a comparison of tables 7 and 14 indicates, however, several local jurisdictions apparently prefer to retain, at least initially, sales involving a nonprofit organization as transacting party. A preponderance among local jurisdictions provides for screening at the time statistical calculations are completed. Proportionally less exclusion occurs at earlier stages than is the case with State studies.

A substantial majority among local jurisdictions attempts to verify price. Most jurisdictions (including 9 from California) use personal and/or telephone interviews. The interviews may or may not result from a mail canvass via questionnaire, a technique reported by 16 places (only six from outside California). State transfer tax documentation constitutes a data source for local studies in 30 jurisdictions. Records associated with local transfer taxes have the same utility in California, District of Columbia, New York City, Ohio, and Washington (State).

#### Statistical measures derived

The assessment level achieved is an obvious concern in local jurisdictions, and local ratio studies reflect this, as shown in table 15. Among 55 respondents, 41 (in 22 States) reported derivation of mean ratios, while 33 (in 17 States) calculate medians. The ratio of aggregate amounts ("weighted mean" in some definitions) appears in 29 local studies.

Intra-area dispersion coefficients, where calculated, are based on median ratios by 19 local units. Two of them (Alameda and San Diego counties in California) also calculate a coefficient based on the mean ratio. Eight of the local jurisdictions responding used the mean ratio only.

Certain local assessing offices compute coefficients of interarea dispersion as well. The "areas" involved comprise neighborhoods or other subterritories within the city or county. In San Bernardino County, for example, there are portions of territory contained within "map books." San Diego County identifies them as "tax rate districts."

#### Purposes and implementation

As earlier material suggests, local studies are intended to promote intrajurisdictional uniformity. The basic aim is to minimize dispersion, by way of specifics detailed in table 16. Stated positively, the purpose is to equalize individual assessed values within parts of a jurisdiction or within property use

categories, as soon as possible after existence of disparities becomes known to the assessing official involved. Thus local ratio study findings can trigger changes in assessments throughout a jurisdiction, or only within a specified subgrouping.

The above relates to traditional "oversight" or "review" functions. In a limited number of local jurisdictions, continuing study of sales produces the basic for the primary approach to valuation, market data. The underlying assessment level is 100 percent, or full value, and assessments are aimed at a stated percentage thereof. Maricopa and Pima Counties in Arizona exemplify this kind of assessment sequence. Local ratio study findings also become a possible element in taxpayer appeals, at least at the first level of review. This is not yet a common occurrence, however, as the findings in table 16 make evident. Local studies generally are still internally oriented tools rather than externally available sources of disparity data.

### TRANSFER TAXES AND RECORDATION REQUIREMENTS

#### History

Prior to 1968 the Federal Government imposed a tax on the transfer of real property at the rate of 55 cents per \$500 (or fraction thereof) of the selling price involved. Evidence of payment took the form of documentary stamps affixed to the deed of conveyance at time of recordation. The stamps were commonly used as one source of sales data for ratio studies, subject where possible to verification by other means. Verification was deemed necessary because often more stamps than necessary were attached to the deed in an effort to hide the actual price involved. In other situations stamps were affixed after recording, or simply ignored if "enforcement" countenanced such a course. The Federal tax was repealed in 1965, with repeal effective at the end of 1967.

State transfer levies date from 1922, when Virginia passed the first one, followed by South Carolina the next year and Florida in 1931. Alabama, Maryland, Tennessee, and Washington also enacted such laws prior to 1940. Thirty-five State real property transfer tax laws now exist. In addition, the eight States listed below authorize local transfer levies supplementary to the State laws:

Delaware	South Carolina
Maryland	Virginia
New York	Washington
Pennsylvania	West Virginia

In California, Ohio, and the District of Columbia, there are local levies only. Details of State and local levies are contained in tables 17 and 18.

It should be noted that Kansas, which has no transfer tax, nevertheless has for at least 10 years required that a certificate of value containing the sales price be filed along with the deed being registered. Other States have similar statutes conditioning recordation on compliance with sales price display requirements. No inference necessarily attaches, however, about the validity or status of the deed of conveyance involved.

#### Coverage

Twenty-two of the State transfer levies specify the full sales price as the base of the tax. In 10 States the base is the sales price exclusive of the value represented by any mortgage assumed as part of the sale. In Florida, the basic tax applies to the full price while the supplemental tax is limited to the net amount. Arizona uses a tax of \$2 per document instead. Coverage in Indiana extends only to corporations subject to that State's gross income tax.

#### Rates and revenue

State transfer tax rates range from 1 cent per \$100 (0.01 percent) in Colorado to 2 percent in Delaware, as table 17 indicates. In 12 States the rate is 55 cents per \$500 or equivalent (\$1.10 per \$1,000, or 0.11 percent), the same as that used in the now defunct Federal levy. Among the 12, Florida and Maryland have supplementary taxes of 30 cents per \$100 (0.3 percent) and 0.5 percent, respectively. The percentage equivalents for the several State levies are contained in table E.

Revenue from State real property transfer taxes may go to the State, or to local governments exclusively, or to State and local governments, in accordance with applicable statutes.

Amounts collected can be substantial, depending on the interaction of rates and transfer volumes involved. In fiscal 1974 the yield in Pennsylvania reached \$49.7 million. This is approximately half the total in Florida from all documentary stamp levies, including those not involving real property transfers. Other State collections for fiscal 1974 (in millions) include \$17.1, Virginia; \$14.7, Maryland; \$11.8, Tennessee; and \$8.8, New York. In contrast, transfer tax revenue in Rhode Island and Alabama slightly exceeded \$0.5 million and \$0.6 million, respectively.<sup>25</sup>

#### Implementation

Statutes in 21 States provide that stamps be affixed to deeds to confirm that applicable transfer taxes have been paid. Ten States accomplish the same thing by means of an imprint or certification on the deed.

The most useful result to assessors and to other officials interested in valuation and ratio studies is the sales price. This information becomes available by way of affidavits, declarations, or transfer tax returns, required as part of transfer tax or recordation procedures in 18 States, as shown in table 17. In Kansas, one of the 18, there is no transfer tax, as noted earlier. The documentation requirement is part of the law providing for ratio studies.

<sup>25</sup> See *State Tax Collections in 1974*, U.S. Dept. of Commerce, Bureau of the Census, Washington, D.C., GF-74, No. 1, November 1974, table 9.

Table E. Percentage Equivalents, State Transfer Taxes

0.01	0.05	0.10	0.11	0.15	0.02	0.22
Colorado	Hawaii	Alabama Georgia Illinois Kentucky New Jersey North Carolina South Dakota Washington Wisconsin	Arkansas Connecticut Iowa Maine Michigan Nebraska Nevada New York Oklahoma Rhode Island	New Hampshire	Massachusetts South Carolina	Minnesota West Virginia
0.25	0.26	0.41	0.5	0.61	1.0	2.0
Virginia	Tennessee	Florida	Vermont	Maryland	Pennsylvania	Delaware

Local transfer taxes in New York, Ohio, Virginia, Washington (State), and the District of Columbia also provide for affidavits or declarations which display sales prices. In most instances where the above documentation is necessary, its use is an element among ratio study procedures for the State and localities involved.

#### Enforcement

Survey responses indicate that at least four States (Nebraska, New Jersey, Vermont, and Wisconsin)

require the specified documentation for all transfers, including those exempt from payment of the tax. Fifteen States relieve transacting parties in an exempt status from the obligation to supply the affidavits or other prescribed documents.

Penalties for false statements of value are detailed in table 17. In several instances there is specific provision for invoking penalties for perjury. Fines specified range from \$20 (South Carolina) to \$5,000 (New York), and imprisonment from 10 days to 5 years.

Table 1. Number of Primary Assessing Jurisdictions, by Type of Government,  
by State: 1974

State	Total	Counties <sup>1</sup>	Municipalities	Townships	Other	State	Total	Counties <sup>1</sup>	Municipalities	Townships	Other
United States..	13,516	2,554	1,788	8,991	2	Missouri.....	417	91	41	325	-
Alabama.....	67	67	-	-	-	Montana.....	56	56	-	-	-
Alaska.....	25	12	13	-	-	Nebraska.....	93	93	-	-	-
Arizona.....	14	14	-	-	-	Nevada.....	17	17	-	-	-
Arkansas.....	75	75	-	-	-	New Hampshire.....	234	-	13	221	-
California.....	58	258	-	-	-	New Jersey.....	567	-	335	232	-
Colorado.....	63	263	-	-	-	New Mexico.....	32	32	-	-	-
Connecticut.....	169	-	19	2150	-	New York.....	983	8	462	2919	-
Delaware.....	3	3	-	-	-	North Carolina.....	100	100	-	-	-
District of Columbia.....	1	-	41	-	-	North Dakota.....	1,755	29	358	1,368	-
Florida.....	67	267	-	-	-	Ohio.....	88	88	-	-	-
Georgia.....	159	159	-	-	-	Oklahoma.....	77	77	-	-	-
Hawaii.....	1	-	-	-	(5)	Oregon.....	36	36	-	-	-
Idaho.....	44	44	-	-	-	Pennsylvania.....	67	267	-	-	-
Illinois.....	1,405	19	-	1,386	-	Rhode Island.....	39	-	48	31	-
Indiana.....	1,008	-	-	1,008	-	South Carolina.....	46	46	-	-	-
Iowa.....	118	99	19	-	-	South Dakota.....	71	65	6	-	-
Kansas.....	105	105	-	-	-	Tennessee.....	95	295	-	-	-
Kentucky.....	120	120	-	-	-	Texas.....	254	254	-	-	-
Louisiana.....	64	64	-	-	-	Utah.....	29	29	-	-	-
Maine.....	497	-	22	2474	(5)	Vermont.....	249	3	9	237	-
Maryland.....	524	523	451	-	-	Virginia.....	133	95	438	-	-
Massachusetts.....	351	-	39	312	-	Washington.....	89	39	-	-	-
Michigan.....	1,517	-	270	1,247	-	West Virginia.....	55	55	-	-	-
Minnesota.....	89	87	2	-	-	Wisconsin.....	1,835	1	572	31,262	-
Mississippi.....	82	82	-	-	-	Wyoming.....	23	23	-	-	-

- Represents zero or rounds to zero.

<sup>1</sup>Includes boroughs in Alaska and parishes in Louisiana.

<sup>2</sup>Each respective State total affected includes the following city-counties or city-county consolidations: San Francisco, Calif.; Denver, Colo.; Jacksonville-Duval County, Fla.; Columbus-Muscogeee County, Ga.; Baton Rouge-East Baton Rouge Parish, and New Orleans-Orleans Parish, La.; Philadelphia, Penn.; Nashville-Davidson County, Tenn.

<sup>3</sup>Total shown consists of towns for Connecticut, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, and Wisconsin. Total shown for Maine consists of 419 towns and 55 plantations.

<sup>4</sup>Each respective State total affected includes the following cities performing county-type functions: Washington, D.C.; Baltimore, Md.; St. Louis, Mo.; New York, N.Y.; eight cities in Rhode Island; and 38 "independent" cities in Virginia.

<sup>5</sup>The State is the primary assessing jurisdiction for the entire State in Hawaii, and for the unorganized territory in Maine. In Maryland, local assessors and their clerical staffs became employees of the State on July 1, 1974, and July 1, 1975, respectively. In Montana, county assessors became agents of the State Department of Revenue, effective July 1, 1973. As to both States, however, counties (and Baltimore city) are considered primary assessing jurisdictions for the summation contained in this table.

## STATE AND LOCAL RATIO STUDIES

Table 2. Scope of State Ratio Studies

State	Year begun	Interval of study <sup>1</sup>	Period covered	Ratio study results		Cost of ratio study activity <sup>2</sup> (thousands of dollars)
				Published	Not published, accessibility to public as indicated	
Alaska.....	1973	A	3 years	Yes		45
Arizona.....	1968	<sup>3</sup> C	1 year			(NA)
Arkansas.....	1957	A	1 year	Yes		470
California.....	<sup>4</sup> 1955	A	1 year	Yes		1,839
Colorado.....	1966	A	3 years	Yes		70
Florida.....	1972	<sup>5</sup> A	1 year	Yes		900
Georgia.....	1965	A	1 year		Obtainable	325
Hawaii.....	1963	A	1 year		Obtainable	(NA)
Idaho.....	1963	A	1 year		Obtainable	90
Illinois.....	1945	A	1 year	Yes		€30
Iowa.....	1959	A	1 year	In part		100
Kansas.....	1933	A	1 year	Yes		(NA)
Kentucky.....	1937	A	2 years	Yes		50
Maine.....	1968	B	2 years		Obtainable	(NA)
Maryland.....	1953	A	1 year	Yes		55
Massachusetts.....	1966	B	2 years		Obtainable	(NA)
Michigan.....	1946	A	3 years	Yes		(NA)
Minnesota.....	1952	A	3 years	Yes		235
Montana.....	1965	A	1 year		Not obtainable	50
Nebraska.....	1970	A	1 year	Yes		(NA)
Nevada.....	1956	A	3 years	Yes		19
New Hampshire.....	(NA)	B	1 year	Yes		(NA)
New Jersey.....	1954	A	1 year	Yes		(NA)
New York.....	1951	B	2 years	Yes		<sup>7</sup> ,500
North Dakota.....	1964	B	3 years	Yes		(NA)
Ohio.....	<sup>8</sup> 1946	C	6 months	Yes		38
Oregon.....	1913	A	1 year	Yes		(NA)
Pennsylvania.....	1949	A	5 years	Yes		625
Rhode Island.....	1960	A	1 year	Yes		(NA)
South Dakota.....	1959	A	3 years	Yes		5
Utah.....	1962	<sup>9</sup> A	<sup>(10)</sup>	Yes		20
Vermont.....	1963	B	1 year	Yes		<sup>11</sup> ,300
Virginia.....	1913	<sup>12</sup> A	2 years	Yes		(NA)
Washington.....	1951	A	1 year	Yes		525
West Virginia.....	<sup>(13)</sup>	A	1 year		Obtainable	(NA)
Wisconsin.....	<sup>14</sup> 1932	A	1 year		Obtainable	300

<sup>NA</sup> Not available.<sup>1</sup>The letters in this column represent the following intervals: A - Annual, B - Biennial, C - Semiannual.<sup>2</sup>Annual unless otherwise indicated.<sup>3</sup>Ratio results calculated twice each year for small counties, four times each year for large counties.<sup>4</sup>Various studies from 1880 to 1909, 1935 to 1937, 1951. Current series began in 1955.<sup>5</sup>Coverage of one-third of the counties annually, in a 3-year cycle.<sup>6</sup>Allocable costs only.<sup>7</sup>Cost over a 2-year period; includes systems work on modification of machine operations and programming of new operations.<sup>8</sup>No study was conducted from 1964 to 1967.<sup>9</sup>To be conducted annually, effective 1974.<sup>10</sup>Three years for urban counties; 5 years for rural counties.<sup>11</sup>Cost over an 18-month period.<sup>12</sup>Conducted biennially prior to 1973.<sup>13</sup>Done only on an irregular basis prior to 1972.<sup>14</sup>Began in 1932, ratio studies have differed substantially from initial efforts. A computer assisted, office-verified sales/assessment system was introduced in 1971. In addition, a new system of field verification applicable to sales of agricultural, forest, swamp, and waste land was introduced in 1973.

**Table 3. Jurisdictional Classifications for Which State Agencies Derive Ratios, by Status of Ratio and by State**

State	State	Counties	Municipalities	School districts	Townships	State	State	Counties	Municipalities	School districts	Townships
Alaska.....	-	OF	OF	OF	-	Montana.....	OF	OF	OF	-	-
Arizona.....	OF	OF	OF	OF	-	Nebraska.....	OF	OF	-	-	-
Arkansas.....	OF	OF	OF	OF	-	Nevada.....	-	OF	-	-	-
California.....	-	OF	-	-	-	New Hampshire.....	-	-	OF	-	OF
Colorado.....	-	OF	OF	-	-	New Jersey.....	-	-	OF	-	OF
Florida.....	-	OF	-	-	-	New York.....	OF	OF	OF	-	OF
Georgia.....	UC	OF	UC	-	-	North Dakota.....	-	OF	-	-	-
Hawaii.....	UC	UC	-	-	-	Ohio.....	OF	OF	OF	-	OF
Idaho.....	UC	-	-	-	-	Oregon.....	-	OF	-	-	-
Illinois.....	UC	OF	OF	-	OF	Pennsylvania.....	-	OF	OF	OF	-
Iowa.....	-	OF	OF	-	-	Rhode Island.....	OF	-	OF	-	OF
Kansas.....	OF	OF	-	-	-	South Dakota.....	OF	UC	UC	-	-
Kentucky.....	OF	OF	-	UC	-	Utah.....	UC	UC	UC	-	-
Maine.....	-	OF	-	-	OF	Vermont.....	-	-	OF	OF	OF
Maryland.....	-	OF	-	-	-	Virginia.....	OF	OF	<sup>1</sup> OF	-	-
Massachusetts.....	-	-	OF	-	OF	Washington.....	UC	OF	-	-	-
Michigan.....	OF	OF	OF	-	OF	West Virginia.....	-	OF	-	-	-
Minnesota.....	-	UC	UC	OF	UC	Wisconsin.....	OF	OF	OF	OF	OF

Explanation of codes used in copy is as follows:

OF (Officially found) - Refers to ratios computed to satisfy prescribed requirements associated with publication of results, an aid distribution formula, or similar purpose not confined to internal analysis. In certain instances the computation of such ratios is in compliance with a specific statutory provision, or with a general statutory directive.

UC (Unofficially calculated) - Refers to ratios calculated as an aid to internal analysis within the State agency having responsibilities affecting local assessment administration, and/or within the local assessing jurisdictions affected.

- Indicates no ratio derived.

<sup>1</sup>"Independent" cities only.

**Table 4. Area Locations for Which State Agencies Derive Ratios, by Status of Ratio and by State**

State	Urban		Suburban	Rural	State	Urban		Suburban	Rural
	Entire area	Neighborhoods				Entire area	Neighborhoods		
Alaska.....	OF	<sup>1</sup> OF	OF	OF	Nebraska.....	OF	-	-	OF
Arizona.....	OF	OF	OF	OF	Nevada.....	OF	-	-	OF
Georgia.....	OF	-	OF	OF	New Jersey.....	OF	-	OF	OF
Hawaii.....	-	<sup>1</sup> OF	-	-	South Dakota.....	OF	-	-	OF
Illinois.....	OF	-	-	OF					
Iowa.....	OF	-	-	OF	Utah.....	OF	OF	-	OF
Kansas.....	OF	-	-	OF	Vermont.....	OF	OF	OF	OF
Minnesota.....	-	UC	-	-	Wisconsin.....	UC	OF	UC	UC

Explanation of codes used in copy is as follows:

OF (Officially found) - Refers to ratios computed to satisfy prescribed requirements associated with publication of results, an aid distribution formula, or similar purpose not confined to internal analysis. In certain instances the computation of such ratios is in compliance with a specific statutory provision, or with a general statutory directive.

UC (Unofficially calculated) - Refers to ratios calculated as an aid to internal analysis within the State agency having responsibilities affecting local assessment administration, and/or within the local assessing jurisdictions affected.

- Indicates no ratio derived.

<sup>1</sup>In Alaska, "service areas"; in Hawaii, "tax zones", subjurisdictional areas which in some instances are equivalent to neighborhoods or groups of neighborhoods.

## STATE AND LOCAL RATIO STUDIES

Table 5. Property Use Categories for Which State Agencies Derive Ratios, by Status of Ratio and by State

State	Realty											Personality, all use categories (as a single group)	Public utilities		
	Residential			Commercial	Industrial	Agricultural	Vacant land	Timber land	Mineral rights	Other realty					
	All use categories	All	Single-family												
Alaska.....	OF	-	-	-	-	-	OF	-	-	OF:	Improved property	-	-		
Arizona.....	-	OF	OF	OF	OF	OF	OF	-	-	OF:	Rurban (rural-urban periphery)	-	-		
Arkansas.....	OF	OF	OF	OF	OF	OF	OF	OF	OF	OF:	Rurban (rural-urban periphery)	OF	OF		
California.....	OF	UC	UC	UC	UC	UC	1UC	UC	UC			UC	OF		
Colorado.....	-	OF	-	-	OF	OF	OF	-	-			-	-		
Florida.....	-	OF	-	-	OF	OF	OF	-	-			2OF	-		
Georgia.....	-	OF	-	-	OF	OF	OF	UC	-			-	UC		
Hawaii.....	UC	UC	UC	UC	UC	-	UC	-	-			-	-		
Idaho.....	-	OF	OF	OF	OF	OF	OF	OF	OF			-	-		
Illinois.....	OF	-	-	-	-	-	-	-	-			-	-		
Iowa.....	-	OF	OF	OF	OF	OF	OF	OF	-	OF:	Resort realty	-	-		
Kansas.....	-	OF	OF	OF	OF	OF	3OF	-	-	OF:	Rural (home sites, planned subdivisions, recreational realty)	-	-		
Kentucky.....	-	OF	-	-	OF	-	OF	-	-			-	-		
Maine.....	OF	-	-	-	-	-	-	-	-			-	-		
Maryland.....	-	OF	OF	OF	OF	OF	OF	-	-			-	-		
Massachusetts.....	-	-	UC	UC	UC	UC	UC	UC	-			UC	-		
Michigan.....	OF	OF	-	-	OF	OF	OF	-	OF			OF	-		
Minnesota.....	-	OF	OF	OF	OF	OF	OF	OF	-	UC	OF:	Seasonal recreational	-		
Montana.....	-	-	OF	OF	OF	-	-	OF	-			-	-		
Nebraska.....	-	-	OF	OF	OF	OF	OF	OF	-			-	-		
Nevada.....	-	OF	OF	OF	OF	OF	OF	OF	-	OF:	Special land <sup>4</sup>	-	-		
New Hampshire.....	OF	-	-	-	-	-	-	-	-			-	-		
New Jersey.....	-	OF	OF	OF	OF	OF	OF	OF	-			-	-		
New York.....	-	-	UC	UC	UC	UC	UC	UC	-			-	UC		
North Dakota.....	OF	OF	-	-	OF	-	OF	-	-			-	-		
Ohio.....	OF	OF	-	-	OF	OF	OF	-	-			-	-		
Oregon.....	-	OF	OF	OF	OF	OF	OF	OF	-			OF	-		
Pennsylvania.....	OF	-	-	-	-	-	-	-	-			-	-		
Rhode Island.....	-	-	OF	OF	OF	OF	OF	OF	-			-	OF		
South Dakota.....	-	OF	-	-	OF	-	OF	-	-			-	-		
Utah.....	OF	OF	OF	OF	OF	OF	OF	UC	UC			UC	OF		
Vermont.....	OF	OF	OF	OF	OF	OF	OF	OF	OF			OF	OF		
Virginia.....	-	OF	OF	OF	OF	OF	OF	-	-			-	-		
Washington.....	OF	OF	-	-	-	-	-	-	-			OF	-		
West Virginia.....	OF	-	-	-	-	-	-	OF	-			-	-		
Wisconsin.....	OF	-	-	-	OF	OF	OF	OF	-			-	-		

Explanation of codes used in copy is as follows:

OF (Officially found) - Refers to ratios computed to satisfy prescribed requirements associated with publication of results, an aid distribution formula, or similar purpose not confined to internal analysis. In certain instances the computation of such ratios is in compliance with a specific statutory provision, or with a general statutory directive.

UC (Unofficially calculated) - Refers to ratios calculated as an aid to internal analysis within the State agency having responsibilities affecting local assessment administration, and/or within the local assessing jurisdictions affected.

- Indicates no ratio derived.

<sup>1</sup>Vacant residential land only.

<sup>2</sup>Effective with 1974 study.

<sup>3</sup>Platted lots only.

<sup>4</sup>Realty located outside an incorporated municipality, i.e., rural-urban acreage, subdivided lots, or parcels.

## STATE RATIO STUDIES

Table 6. Major Characteristics of State Ratio Studies

State	Administrative agency	Value indicators used		Data collection by local officials		Screening occurs--		Price verification by--	
		Sales Appraisal	For assessed values	Borough or city assessor County recorder	All sales	At time before agreement of encom- passing	When verified	Personal interview	Telephone sales
Alaska.....	Department of Community and Regional Affairs.....	Yes <sup>(1)</sup>	To supplement sparse sales	County recorder	46%	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>
Arizona.....	Department of Revenue.....	Yes <sup>(1)</sup>	County assessor				Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	No transfer tax affidavit
Arkansas.....	Public Service Commission, State Board of Equalization, Property Tax Department.....	Yes <sup>(1)</sup>	Exclusively	Sales not used					
California.....	Assessment Coordination Division, Division of Property Taxation.....	Yes <sup>(1)</sup>	Exclusively	Sales not used					
Colorado.....	Department of Revenue, Division of Property Taxation.....	Yes <sup>(1)</sup>	Local assessor	Local recording official	90%		Yes <sup>(1)</sup>		
Florida.....	Assessment Ratio Study Division, Office of Auditor General.....	Yes <sup>(1)</sup>	Exclusively	Sales not used					
Georgia.....	Department of Audit and Accounts.....	Yes <sup>(1)</sup>	To supplement all sales	County clerk	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>		
Hawaii.....	Department of Taxation.....	Yes <sup>(1)</sup>	No	No					
Idaho.....	Department of Revenue and Taxation.....	Yes <sup>(1)</sup>	To supplement all sales	County assessor	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Certificate of conveyance	
Illinois.....	Department of Local Government Affairs.....	Yes <sup>(1)</sup>	County supervisor of assessments	County recorder of deeds	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	No transfer tax	
Iowa.....	Department of Revenue.....	Yes <sup>(1)</sup>	City or county assessor	County recorder	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Real estate transfer declaration	
Kansas.....	Department of Revenue, Division of Property Valuation.....	Yes <sup>(1)</sup>	County assessor	Register of deeds	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Transfer record compiled by assessor and recorder	
Kentucky.....	Department of Revenue.....	Yes <sup>(1)</sup>	Property valuation administrator	County clerk	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	No transfer tax, but a certificate of value is used	
Maine.....	Bureau of Property Taxation.....	Yes <sup>(1)</sup>	Municipal assessor	No	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Affidavit	
Maryland.....	Department of Assessments and Taxation.....	Yes <sup>(1)</sup>	To supplement sparse sales	Supervisor of assessments <sup>2</sup>	(NA)	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Stamps	
Massachusetts.....	Department of Corporations and Taxation.....	Yes <sup>(1)</sup>	To supplement all sales	Assessor	95%	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Not used	
Michigan.....	Department of Treasury, State Tax Commission.....	Yes <sup>(1)</sup>	To supplement sparse sales	Assessor			Yes <sup>(1)</sup>		
Minnesota.....	Department of Taxation, Tax Research Division.....	Yes <sup>(1)</sup>	To supplement sparse sales	County assessor	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Affidavit usable only if disclosed	
Montana.....	Department of Revenue.....	Yes <sup>(1)</sup>	Assessor <sup>3</sup>	County clerk and recorder	20%	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	Certificate of real estate value	
Nebraska.....	Department of Revenue.....	Yes <sup>(1)</sup>	Assessor	No	All sales	Yes <sup>(1)</sup>	Yes <sup>(1)</sup>	No transfer tax statement	

See footnotes at end of table.

## STATE AND LOCAL RATIO STUDIES

Table 6. Major Characteristics of State Ratio Studies—Continued

State	Administrative agency	Value indicators used	Use of sales		Price verification by—		
			Data collection by totals	For transfer information	Screening occurs—	During statistical treatment	Personal interview
Nevada.....	Tax Commission.....	To supplement all sales	County assessor	Recording official	All sales	Yes	Yes
New Hampshire.....	Department of Revenue.....	Yes (1)	Solicitors-assessor	No	(MA)	Yes (1)	Yes (1)
New Jersey....	Department of the Treasury.....	Yes (1)	Assessors	County registrar	All sales	Yes (1)	Yes (1)
New York.....	State Board of Equalization and Assessments.....	To supplement all sales	Local assessor	County clerk	(1)	Yes	Yes (1)
North Dakota.....	State Tax Department.....	Yes (1)	City assessor or county tax equalization commission	City assessor or county tax equalization commission	(MA)	Yes (1)	Yes (1)
Ohio.....	Department of Taxation, Board of Tax Appeals.....	Yes (1)	County auditor	County recorder	All sales	Yes (1)	Yes (1)
Oregon.....	Department of Revenue.....	To supplement all sales	County assessor	County assessor	31%	Yes	Yes (1)
Pennsylvania.....	State Tax Equalization Board.....	Yes (1)	County assessor	County assessor	All sales	Yes (1)	Yes (1)
Rhode Island.....	Department of Community Affairs.....	To supplement all sales	Assessor	Assessor	All sales	Yes (1)	Yes (1)
South Dakota.....	Department of Revenue, Property Tax Division.....	Yes (1)	County assessor	County assessor	(MA)	Yes	Yes (1)
Utah.....	State Tax Commission.....	Yes (1)	No	No	All sales	(1)	Yes (1)
Vermont.....	State Tax Department.....	To supplement all sales	No	No	All sales	Yes (1)	Yes (1)
Virginia.....	Department of Taxation.....	Yes (1)	Commissioner of revenue or other assessing officer	Clerk of the court or record office	All sales	Yes (1)	Yes (1)
Washington....	State Departments of Revenue.....	To supplement all sales	County assessor	County auditor	23%	Yes	Yes (1)
West Virginia.....	State Tax Department.....	Yes (1)	County assessor	County assessor	(MA)	Yes (1)	Yes (1)
Wisconsin.....	Department of Revenue, Bureau of Property and Utility Tax.....	To supplement all sales	Assessor	County register of deeds	All sales	Yes (1)	Yes (1)

NA. Not available.

1. Data not relevant to nature of study, or relevance not indicated by data obtained.

2. State officials.

3. In conjunction with State school aid law.

Table 7. Categories of Sales or Other Transfers of Property Excluded From State Ratio Studies

State	Specified status or relationship of or between grantor and/or grantee					Transfers of convenience <sup>1</sup>	Foreclosure or other such legal action	Miscellaneous categories, number used			
	Relatives	Corporate connection <sup>2</sup>	Nonprofit organization								
			A unit of government	Other	Religious or charitable						
United States, total...	32	32	32	31	29	33	32				
Alaska.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Arizona.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Arkansas.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)				
California.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)				
Colorado.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Florida.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)				
Georgia.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Hawaii.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Idaho.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2			
Illinois.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Iowa.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	15			
Kansas.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2			
Kentucky.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Maine.....	Yes	Yes	Yes	Yes	(3)	Yes	Yes	9			
Maryland.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Massachusetts.....	Yes	Yes	(3)	(3)	(3)	Yes	Yes	1			
Michigan.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Minnesota.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Montana.....	Yes	Yes	Yes	Yes	Yes	Yes	(3)				
Nebraska.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Nevada.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
New Hampshire.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
New Jersey.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
New Mexico.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)				
New York.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
North Dakota.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Ohio.....	(3)	(3)	Yes	(3)	(3)	Yes	Yes	15			
Oregon.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Pennsylvania.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Rhode Island.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
South Dakota.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1			
Texas.....	(3)	(3)	(3)	(3)	(3)	(3)	(3)				
Utah.....	Yes	Yes	Yes	Yes	(3)	Yes	Yes				
Vermont.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Virginia.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Washington.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	18			
West Virginia.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes				
Wisconsin.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	13			

<sup>1</sup>Transfers between corporate affiliates, or between a corporation and its subsidiary, a corporation and its stockholder(s), or two corporations having the same ownership.

<sup>2</sup>Transfers to correct defects in title, create joint tenancy, reorganize or reconvey property.

<sup>3</sup>Data sought not relevant to nature of study, or relevance not indicated by data obtained.

## STATE AND LOCAL RATIO STUDIES

Table 8. Statistical Measures Derived, State Ratio Studies

State	Arith- metic mean	Median ratio	Ratio of aggre- gate amounts	Local deviation (percentage points) from State average ratio	Coefficient of intra-area dispersion, from ratio indicated	Coefficient of interareas dispersion	Frequency distribution	Index of regressive assessment (price re- lated differential)	Standard deviation	Standard error	Sampling error	
United States, total.....	26	24	31	10	From median = 12 From mean = 9		7	19	10	22	7	5
Alaska.....	-	Yes	Yes	-	Median	Yes	Yes	-	-	-	-	-
Arizona.....	-	-	Yes	Yes	-	-	-	-	-	-	-	-
Arkansas.....	Yes	-	Yes	-	-	-	-	-	-	-	-	-
California.....	Yes	Yes	Yes	Yes	Median	Yes	-	-	Yes	-	-	Yes
Colorado.....	-	-	Yes	-	-	Yes	-	-	Yes	-	-	-
Florida.....	-	-	Yes	-	-	-	-	-	Yes	-	-	-
Georgia.....	Yes	Yes	Yes	Yes	-	-	-	-	-	-	-	-
Hawaii.....	Yes	-	Yes	Mean	Yes	Yes	-	Yes	Yes	Yes	-	-
Idaho.....	Yes	Yes	Yes	-	-	Yes	-	Yes	-	Yes	-	-
Illinois.....	Yes	Yes	-	Median	-	Yes	-	-	Yes	-	-	-
Iowa.....	Yes	Yes	Yes	-	Median	-	Yes	Yes	-	-	-	-
Kansas.....	-	Yes	-	Median	-	Yes	-	Yes	-	-	-	-
Kentucky.....	Yes	Yes	Yes	-	Median	-	Yes	Yes	-	-	-	-
Maine.....	Yes	Yes	-	Yes	Median	-	-	-	Yes	-	-	-
Maryland.....	Yes	-	Yes	-	Median	-	-	Yes	Yes	Yes	Yes	-
Massachusetts.....	-	Yes	-	-	Median	-	Yes	-	-	-	-	-
Michigan.....	Yes	-	Yes	-	-	-	-	-	-	-	-	-
Minnesota.....	Yes	Yes	-	-	Median	Yes	-	Yes	Yes	-	-	-
Montana.....	Yes	Yes	Yes	-	Median	-	-	Yes	Yes	-	-	-
Nebraska.....	Yes	Yes	Yes	-	Median	-	Yes	Yes	Yes	Yes	Yes	Yes
Nevada.....	Yes	Yes	Yes	Yes	Median	-	Yes	-	Yes	Yes	Yes	Yes
New Hampshire.....	-	Yes	-	-	-	-	-	-	-	-	-	-
New Jersey.....	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-	-	-
New York.....	-	-	Yes	-	-	-	-	-	-	Yes	Yes	Yes
North Dakota.....	Yes	Yes	Yes	Yes	Median	-	Yes	-	Yes	Yes	Yes	-
Ohio.....	Yes	-	Yes	-	Mean	-	Yes	-	Yes	-	-	-
Oregon.....	Yes	Yes	Yes	-	Mean	-	Yes	-	Yes	-	-	-
Pennsylvania.....	Yes	Yes	Yes	-	-	-	Yes	-	-	-	-	-
Rhode Island.....	-	-	Yes	Yes	-	-	-	-	-	-	-	-
South Dakota.....	Yes	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	-	-
Tennessee.....	-	-	-	-	Mean	Yes	-	-	Yes	-	-	-
Vermont.....	-	-	Yes	-	-	-	-	-	Yes	-	-	-
Virginia.....	Yes	Yes	Yes	-	Median	-	-	-	-	-	-	-
Washington.....	Yes	Yes	Yes	Yes	Mean	Yes	Yes	Yes	-	Yes	Yes	Yes
West Virginia.....	Yes	Yes	Yes	-	-	-	-	-	-	-	-	-
Wisconsin.....	Yes	Yes	Yes	-	Median	-	Yes	Yes	-	-	-	-

- Indicates no measure of the type specified is derived.

Table 9. Use of Ratio Findings Contained in State Ratio Studies

State	Manner of use	Purpose of use					Accomplishment of reappraisal programs		Possibility for use in tax-payer appeals
		Equalization of assessed values		Apportionment of State aid		Other	Selecting residential areas by classification cited <sup>1</sup>	Evaluating reappraisal effectiveness	
		Among counties, with values initially determined by officials at level specified	Within counties	For schools	For purposes specified		(*)	(*)	
Alaska.....	I-E, A	Local	(*)	Yes	(*)	(*)	Area	(*)	Yes
Arizona.....	I-E	Local	Yes	Yes	(*)	.....	Areas, use category	(*)	Yes
Arkansas.....	I-E	Local	Yes	.....	Counties and municipalities	.....	(*)	(*)	Yes
California.....	I-E, A	Local	(*)	Yes	Libraries	Establishing basis for county contributions to medicaid and supplemental security income...	(*)	(*)	Yes
Colorado.....	3I-E, I-S	Local	(*)	(*)	(*)	.....	Area, use category	(*)	Yes
Florida.....	(*)	Local	Yes	(*)	(*)	.....	Use category	Yes	Yes
Georgia.....	I-E, A	Local	(*)	Yes	State support grants	.....	Use category	(*)	Yes
Hawaii.....	I-S	(*)	(*)	(*)	(*)	.....	Area, use category	Yes	(*)
Idaho.....	A	Local	(*)	Yes	(*)	.....	Use category	Yes	(*)
Illinois.....	I-E, A	Local	Yes	Yes	(*)	.....	Area	Yes	Yes
Iowa.....	A	Local	(*)	No	(*)	.....	Area, use category	(*)	(*)
Kansas.....	I-E, I-S	Local	Yes	Yes	Wildlife funds	.....	Areas, use category	Yes	No
Kentucky.....	I-E, I-S, A	Local	(*)	Yes	Health aid	.....	(*)	(*)	(*)
Maine.....	A	Local	.....	Yes	State-municipal revenue sharing; support for local health and welfare, transportation	Purposes associated with forestry district tax...	Area	(*)	Yes
Maryland.....	A	Local	(*)	Yes	Health, local police	.....	Area, use category	Yes	(*)
Massachusetts.....	A	(*)	(*)	Yes	Highway aid and general municipal aid	.....	(*)	(*)	No
Michigan.....	I-E, I-S, A	State and local	Yes	Yes	State revenue sharing, welfare	Equalization appeals by local units.....	Area, use category	Yes	Yes
Minnesota.....	I-E, I-S	A Local	(*)	Yes	(*)	.....	Area, use category	Yes	No
Montana.....	A	State and local	Yes	(*)	(*)	.....	Area, use category	(*)	Has not arisen
Nebraska.....	I-E	Local	Yes	(*)	(*)	.....	(*)	(*)	(*)
Nevada.....	I-E	State and local	Yes	Yes	(*)	.....	Area, use category	(*)	(*)
New Hampshire.....	A	Local	(*)	Yes	(*)	.....	(*)	(*)	Yes
New Jersey.....	1-E, A	Local	Yes	Yes	(*)	Basis for calculations which utilize county portion of local revenue also, basis for appeals by municipalities.	District	(*)	Yes
New York.....	A	Local	Yes	Yes	Town highways general purpose aid	Equalization among school districts.....	(*)	(*)	Yes
North Dakota..	A	Local	Yes	Yes	(*)	.....	(*)	(*)	Yes
Ohio.....	I-E, A	Local	Yes	(*)	(*)	.....	Area, use category	Yes	Yes
Oregon.....	I-E, I-S	Local	Yes	(*)	Financial aid to libraries, community colleges;	.....	Area, use category	Yes	Yes
Pennsylvania.....	A	Local	(*)	Yes	.....	basis for "in lieu" tax payments for island	(*)	(*)	No
Rhode Island.....	A	Local	(*)	Yes	(*)	.....	(*)	Yes	(*)
South Dakota..	A, I-E	State and local	Yes	Yes	Other purposes	.....	Area, use category	Yes	Yes
Utah.....	(*)	(*)	No	No	No <sup>2</sup>	.....	Area, use category	Yes	Yes
Vermont.....	A	Local <sup>3</sup>	(*)	Yes	(*)	.....	Area, use category	(*)	Yes
Virginia.....	A	(*)	(*)	Yes	Health and welfare	.....	(*)	(*)	Has not arisen
Washington....	1-E, I-S	State and local	Within "revaluation areas"	Yes	(*)	State levy utility values.....	(*)	Yes	No
West Virginia..	A	State and local	(*)	Yes	(*)	.....	Area, use category	(*)	No
Wisconsin.....	A	State and local	Yes	(*)	(*)	.....	Area, use category	(*)	No

Explanation of codes used in copy is as follows:

A - Ratio findings used to adjust jurisdiction aggregates to a common level, to produce an equalized value base for apportioning State or other aid, or for similar interjurisdictional equalization purpose.

I-E - Ratio findings used to change individual assessed values whenever necessary, to attain a common level within the entire local assessing jurisdiction affected.

I-S - Ratio findings used to change individual assessed values whenever necessary, to attain a common level for a specified intrajurisdictional subgroup, e.g., use category or neighborhood.

1-Area" may include entire jurisdiction or a portion thereof. "District" is a portion of the jurisdiction. "Use category" refers to purpose for which property is used, or in particular instances, can be used. Examples include single-family residential, commercial, industrial, and agricultural.

Relevance not indicated by data obtained.

Formerly used in school aid apportionment formula.

At time of survey ratio studies in Utah were used as a yardstick to indicate where reappraisal activities are needed.

Local units are cities and towns, not counties.

Table 10. Scope of Ratio Studies Conducted by Local Jurisdictions

Jurisdiction	Year begun	Interval of study	Period covered by study	Availability of results for public use	Jurisdiction	Year begun	Interval of study	Period covered by study	Availability of results for public use
Alabama:					Maine:				
Madison County.....	1972	( <sup>1</sup> )	( <sup>1</sup> )	Obtainable	Portland city.....	1963	Annual	1 year	Not obtainable
Arizona:					Michigan:				
Maricopa County.....	1974	Annual	3 years or more	Obtainable	Detroit city.....	1968	Annual	1 year	Inserted on tax
Pima County.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Not obtainable	Flint city.....	1960	Annual	2-1/2 years	Obtainable
California:					Grand Rapids city.....	1969	Monthly	2 years	Not obtainable
Alameda County.....	1967	Demi-annual	1 year	Not obtainable	Lansing city.....	(NA)	Annual	3 years	Not obtainable
Fresno County.....	1967	Demi-annual	2 years	Not obtainable	Minnesota:				
Kern County.....	1971	Annual	3 years	Not obtainable	Hennepin County.....	(NA)	Biennial	Usually 1 year	Obtainable
Orange County.....	1966	Annual	2 years, 7 months	Not obtainable	Minneapolis city.....	1966	Annual	2 years	Obtainable
Riverside County.....	1973	Annual	3 years	Not obtainable	St. Louis County.....	1970	Annual	3 years	Obtainable
San Joaquin County.....	1961	Annual	2 to 4 years	Not obtainable	Missouri:				
San Bernardino County.....	1961	Semi-annual	2 years	Not obtainable	Kansas City city.....	1967	Monthly	1 month	Obtainable
San Diego County.....	1968	Semi-annual	Up to 30 months	Not obtainable	Nebraska:				
San Mateo County.....	1969	Semi-annual	3 years	Not obtainable	Douglas County.....	1965	Annual	1 year	Published
Santa Clara County.....	1950	Quarterly	3 years	Not obtainable	Lancaster County.....	1966	Annual	1 year	Obtainable
Santa Cruz County.....	1965	Continuous	1 year	Obtainable	New York:				
Colorado:					New York City city.....	1937	Annual	1 year	Not obtainable
Denver County.....	1968	Annual	2 years	Obtainable	North Carolina:				
Jefferson County.....	1965	Annual	1 year	Obtainable	Mecklenburg County.....	1971	Annual	1 year	Obtainable
Pueblo County.....	(NA)	Continuous	1 year	Not obtainable	Ohio:				
Connecticut:					Franklin County <sup>4</sup> .....	1943	Every 6 years	6 years	Published
Bridgeport city.....	1974	( <sup>1</sup> )	1 year	Not obtainable	Oregon:				
Hartford city.....	1965	Semi-annual	3 years	Not obtainable	Lane County.....	(NA)	Semi-annual	5 months	Obtainable
District of Columbia:					Multnomah County.....	1960	Semi-annual	8 months	Obtainable
Washington city.....	1912	Annual	1 year	Obtainable	Rhode Island:				
Florida:					Providence city.....	1970	Annual	1 year	Obtainable
Broward County.....	1969	Annual	4 years	Obtainable	Texas:				
Jacksonville-Duval County	1966	Annual	1 year	Obtainable	Fort Worth city.....	(NA)	Continguous	1 to 2 years	Obtainable
Georgia:					Wichita Falls city.....	1961	Annual	2 years	Obtainable
Chatham County.....	1969	Continuous	1 year	Obtainable	Virginia:				
Fulton County.....	1972	Annual	1 year	Not obtainable	Arlington County.....	1955	Annual	1 year	Obtainable
Muscogee County.....	1970	Annual	1 year	Obtainable	Fairfax County.....	1961	Annual	1 year	Published
Illinois:					Hampton city.....	1956	Annual	2 years	Obtainable
Cook County.....	1971	Annual	3 years	Obtainable	Richmond city.....	1954	Annual	1 year	Published
Winnebago County.....	1970	Annual	1 year	Obtainable	Washington:				
Iowa:					King County.....	1951	Annual	1 year	Obtainable
Des Moines city.....	1962	Annual	1 year	Obtainable	Wisconsin:				
Kentucky:					Madison city.....	1950	Annual	2-1/2 years	Obtainable
Jefferson County <sup>5</sup> .....	1973	( <sup>1</sup> )	1 year	Obtainable	Milwaukee city.....	1948	Annual	1 year	Not obtainable
Louisiana:									
Caddo Parish.....	1965	2 to 4 years	1 year	Obtainable					

<sup>1</sup>NA Not available.<sup>2</sup>Relevance not indicated by data obtained.<sup>3</sup>In the 1970 census only property use periodically involved in a type of "ratio study" locally (a multiple regression sales data program) is owner-occupied single-family residence.<sup>4</sup>Content and interval of study under review.<sup>5</sup>One of 27 Ohio counties where complete reappraisal occurs during tax year 1975. Work may proceed under contract with mass appraisal firm, but in any case must accord with procedures approved by State Board of Tax Appeals. Each of State's 88 counties must be completely reappraised once every 6 years. In Franklin County, a local ratio study is part of the reappraisal effort.

Table 11. Intra-Area Classifications for Which Selected Local Jurisdictions Derive Ratios,  
by Jurisdiction

Jurisdiction	Location			Governmental units		Other
	Urban		Suburban	Rural	Municipalities or townships	
	Entire urban area	Neighbo- rhoods or assessing districts				
Alabama:						
Madison County.....	Yes	Yes	Yes	Yes	Yes	Appraisal manual types
Arizona:						
Maricopa County.....	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> ) Appraisal manual types
California:						
Alameda County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Fresno County.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Kern County.....	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )
Orange County.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Riverside County.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Sacramento County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
San Bernardino County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
San Diego County.....	Yes	Yes	Yes	Yes	Yes	Yes
San Mateo County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Santa Clara County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )
Santa Cruz County.....	Yes	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )
Colorado:						
Denver County.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes
Pueblo County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )
Connecticut:						
Hartford city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
District of Columbia:						
Washington city.....	Yes	Yes	( <sup>1</sup> )	None	( <sup>2</sup> )	( <sup>1</sup> )
Florida:						
Broward County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	-Yes	( <sup>1</sup> )
Jacksonville-Duval County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Georgia:						
Chatham County.....	Yes	( <sup>1</sup> )	Yes	Yes	Yes	( <sup>1</sup> )
Fulton County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Illinois:						
Cook County.....	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )
Winnebago County.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Iowa:						
Des Moines city.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Kentucky:						
Jefferson County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Louisiana:						
Caddo Parish.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes
Maine:						
Portland city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Michigan:						
Detroit city.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Flint city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Grand Rapids city.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Lansing city.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Minnesota:						
Minneapolis city.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
St. Louis County.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )

See footnotes at end of table.

Table 11. Intra-Area Classifications for Which Selected Local Jurisdictions Derive Ratios,  
by Jurisdiction—Continued

Jurisdiction	Location			Governmental units		Other
	Urban		Suburban	Rural	Municipalities or townships	
	Entire urban area	Neighborhoods or assessing districts			School districts	
Missouri: Kansas City city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> ) Zip codes
Nebraska: Douglas County..... Lancaster County.....	Yes Yes	Yes ( <sup>1</sup> )	Yes Yes	Yes Yes	( <sup>1</sup> ) ( <sup>1</sup> )	Appraisal manual types Appraisal manual types
New York: New York City city.....	Yes	Yes	( <sup>1</sup> )	None	( <sup>2</sup> )	( <sup>1</sup> ) Value ranges
North Carolina: Mecklenburg County.....	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> ) Appraisal manual types; value ranges
Ohio: Franklin County <sup>a</sup> .....	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> ) Appraisal manual types
Oregon: Lane County.....	Yes	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	Yes Appraisal manual types; structure age
Multnomah County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Rhode Island: Providence city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>1</sup> )
Texas: Fort Worth city..... Wichita Falls city.....	( <sup>1</sup> ) Yes	( <sup>1</sup> ) Yes	( <sup>1</sup> ) Yes	( <sup>1</sup> ) Yes	( <sup>2</sup> ) ( <sup>2</sup> )	Yes Appraisal manual types; value ranges; structure age
Virginia: Arlington County..... Fairfax County..... Richmond city..... Hampton city.....	( <sup>1</sup> ) Yes ( <sup>1</sup> ) ( <sup>1</sup> )	Yes Yes ( <sup>1</sup> ) Yes	( <sup>1</sup> ) Yes ( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> ) ( <sup>1</sup> ) ( <sup>1</sup> ) Yes	( <sup>1</sup> ) ( <sup>1</sup> ) ( <sup>2</sup> ) ( <sup>2</sup> )	( <sup>1</sup> ) ( <sup>1</sup> ) ( <sup>1</sup> ) ( <sup>1</sup> ) Unincorporated towns Appraisal manual types; value ranges; structure age
Washington: King County.....	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> ) Value ranges
Wisconsin: Madison city..... Milwaukee city.....	Yes ( <sup>1</sup> )	( <sup>1</sup> ) Yes	Yes ( <sup>1</sup> )	Yes ( <sup>1</sup> )	( <sup>2</sup> ) ( <sup>2</sup> )	( <sup>1</sup> ) ( <sup>1</sup> ) Appraisal manual types

<sup>1</sup>Coverage, if any, not indicated by data obtained.

<sup>2</sup>Classification indicated applies to entire jurisdiction.

<sup>a</sup>See footnote 4, table 10.

Table 12. Property Use Categories for Which Selected Local Jurisdictions Derive Ratios,  
by Jurisdiction

Jurisdiction	Realty								Personality	
	All types as a single group	Residential			Commer- cial	Indus- trial	Agricul- tural	Vacant land		
		All	Single- family	Multi- family						
Alabama:										
Madison County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Arizona:										
Maricopa County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Pima County.....	( <sup>1</sup> )			Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
California:										
Alameda County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	
Fresno County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unspecified types	( <sup>1</sup> )	
Kern County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Mineral rights	( <sup>1</sup> )	
Orange County.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	
Riverside County.....	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	
Sacramento County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	
San Bernardino County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	
San Diego County.....	Yes	2 <sup>Yes</sup>	Yes	Yes	2 <sup>Yes</sup>	2 <sup>Yes</sup>	Yes	( <sup>2</sup> )	( <sup>1</sup> )	
San Mateo County.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Santa Clara County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	
Santa Cruz County.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	Yes	( <sup>1</sup> )	Yes	
Colorado:										
Denver County.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Jefferson County.....	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Pueblo County.....	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	Yes	
Connecticut:										
Bridgeport city.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Hartford city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	
District of Columbia:										
Washington city.....	Yes	Yes	Yes	Yes	Yes	Yes	None	Yes	Exempt property	
Florida:										
Broward County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	
Jacksonville-Duval County..	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Timberland	
Georgia:										
Chatham County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	
Fulton County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	
Muscogee County.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	
Illinois:										
Cook County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Winnebago County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Iowa:										
Des Moines city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Kentucky:										
Jefferson County.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Louisiana:										
Caddo Parish.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	
Maine:										
Portland city.....	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Michigan:										
Detroit city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Flint city.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Grand Rapids city.....	( <sup>1</sup> )	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Lansing city.....	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	-Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	
Minnesota:										
Hennepin County.....	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Minneapolis city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
St. Louis County.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	Yes	Seasonal and recre- ational property	
Missouri:										
Kansas City city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	

See footnotes at end of table.

## STATE AND LOCAL RATIO STUDIES

Table 12. Property Use Categories for Which Selected Local Jurisdictions Derive Ratios, by Jurisdiction—Continued

Jurisdiction	All types as a single group	Realty							Person- alty	
		Residential			Commer- cial	Indus- trial	Agricul- tural	Vacant land		
		All	Single- family	Multi- family						
Nebraska:										
Douglas County.....	Yes ( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> ) Yes	Yes	Yes	Yes	Yes ( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> )	
Lancaster County.....	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )					
New York:										
New York City city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
North Carolina:										
Mecklenburg County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Ohio:										
Franklin County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Public utilities	( <sup>1</sup> )	
Oregon:										
Lane County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Timberland	Yes ( <sup>1</sup> )	
Multnomah County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Timberland	( <sup>1</sup> )	
Rhode Island:										
Providence city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	Yes ( <sup>1</sup> )	( <sup>1</sup> )	
Texas:										
Fort Worth city.....	( <sup>1</sup> )	Yes	Yes	Yes ( <sup>1</sup> )	Yes ( <sup>1</sup> )	Yes ( <sup>1</sup> )	Yes ( <sup>1</sup> )	Yes ( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> )	
Wichita Falls city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>1</sup> )	( <sup>1</sup> )	
Virginia:										
Arlington County.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Fairfax County.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	
Richmond city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes ( <sup>1</sup> )	( <sup>1</sup> )	
Hampton city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes ( <sup>1</sup> )	( <sup>1</sup> )	
Washington:										
King County.....	Yes	Yes	Yes	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	Yes ( <sup>1</sup> )	Yes	
Wisconsin:										
Madison city.....	( <sup>1</sup> )	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	
Milwaukee city.....	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>1</sup> )	Yes ( <sup>1</sup> )	( <sup>1</sup> )	

<sup>1</sup>Relevance, if any, not indicated by data obtained.<sup>2</sup>Nine residential types, nine commercial (San Diego) types, six industrial types, four other categories.<sup>3</sup>Commercial and industrial considered a single category.

Table 13. Major Characteristics of Ratio Studies Conducted by Local Jurisdictions

Jurisdiction	Value indicators used	Use of sales data				Price verification by means indicated	
		Sales included (before screening)	Screening occurrence				
			At time of enumeration	When price verified	During statistical treatment		
Alabama:							
Madison County.....	Sales, appraisals	All	Yes			P, Tr(S)	
Arizona:							
Maricopa County.....	Sales	All <sup>1</sup>				Yes Tr(S)	
Pima County <sup>2</sup> .....	Sales <sup>1</sup>	All <sup>1</sup>				Tr(S) <sup>1</sup>	
California:							
Alameda County.....	Sales	Sample		Yes		Yes Tr(L), Q, C	
Fresno County.....	Sales	Sample		Yes		Yes Tr(L), P, Q, C	
Kern County.....	Sales	Sample		Yes		P, Q, C	
Orange County.....	Sales	Sample		Yes		P, Q, C	
Riverside County.....	Sales, appraisals	Sample	Yes			Q, C	
Sacramento County.....	Sales	All				Yes P, T, Q, Tr(L), C	
San Bernardino County.....	Sales	All	Yes			Yes P, C	
San Diego County.....	Sales	All		Yes		Yes P, T, Q, Tr(L), C	
San Mateo County.....	Sales	All		Yes		Yes T, Q, C	
Santa Clara County.....	Sales, appraisals	Sample		Yes		Yes P, T, Q, Tr(L), C, contacts with realtors, lenders	
Santa Cruz County.....	Sales, appraisals	Sample	Yes	Yes		P, T, Q, Tr(L), C, title company records	
Colorado:							
Denver County.....	Sales	Sample	Yes	Yes		Yes P, T, Q, Tr(S), C	
Jefferson County.....	Sales	Sample		Yes		Tr(S)	
Connecticut:							
Bridgeport city.....	Sales, appraisals	Sample	Yes			Tr(S)	
Hartford city.....	Sales, appraisals	All	Yes	Yes		P, T, Tr(S)	
District of Columbia:							
Washington city.....	Sales	All		Yes		Tr(L)	
Florida:							
Broward County.....	Sales	All				Yes T, Tr(S)	
Jacksonville-Duval County	Sales	All	Yes	Yes		Yes P, Tr(S)	
Georgia:							
Chatham County.....	Sales, appraisals	All				Yes P, T, title company records	
Fulton County.....	Sales, appraisals	Sample				Yes P, T, Tr(S)	
Muscogee County.....	Sales, appraisals	All				Yes P, T, Tr(S)	
Illinois:							
Cook County.....	Sales	All				Yes Tr(S)	
Winnebago County.....	Sales	Sample	Yes			T, Tr(S)	
Iowa:							
Des Moines city.....	Sales	All	Yes			P, T, Tr(S)	
Kentucky:							
Jefferson County <sup>2</sup> .....	Sales	All				Tr(S)	
Louisiana:							
Caddo Parish.....	Sales	All		Yes	Yes	P, T	
Maine:							
Portland city.....	Sales	Sample				Yes P, Tr(S)	
Michigan:							
Detroit city.....	Sales, appraisals	All				Yes P, Tr(S)	
Flint city.....	Sales	All				Yes P, T, Tr(S)	
Grand Rapids city.....	Sales	All				Yes P, T, Tr(S)	
Lansing city.....	Sales	All				Yes P, Tr(S)	
Minnesota:							
Hennepin County.....	Sales	Sample	Yes	Yes		P, T, Tr(S)	
Minneapolis city.....	Sales	All		Yes		P, T	
St. Louis County.....	Sales	All		Yes		Tr(S)	
Missouri:							
Kansas City city.....	Sales	Sample		Yes		T, Q, C	

See footnotes at end of table.

## STATE AND LOCAL RATIO STUDIES

Table 13. Major Characteristics of Ratio Studies Conducted by Local Jurisdictions—Continued

Jurisdiction	Value indicators used	Sales included (before screening)	Use of sales data				Price verification by means indicated	
			Screening occurrence					
			At time of enumeration	When price verified	During statistical treatment			
Nebraska: Douglas County..... Lancaster County.....	Sales Sales	All Sample	Yes Yes	Yes	Yes	Yes	Tr(S) T, Tr(S)	
New York: New York City city....	Sales	All				Yes	P, T, Tr(L), public records search	
North Carolina: Mecklenburg County....	Sales	All		Yes			P, Q	
Oregon: Lane County..... Multnomah County.....	Sales Sales, appraisals	All All	Yes	Yes Yes	Yes	Yes	P, Q, title company records T, Q, C	
Rhode Island: Providence city.....	Sales	All				Yes	P, T	
Texas: Fort Worth city.....	Sales, appraisals	All		Yes			P, VA and FHA listings, multiple listing service	
Wichita Falls city....	Sales	All	Yes	Yes	Yes	Yes	P, T, title company records	
Virginia: Arlington County..... Fairfax County..... Richmond city..... Hampton city.....	Sales Sales Sales Sales, appraisals	All All All All	Yes			Yes Yes Yes Yes	P, Tr(S, L) P, T, Tr(S, L) P, T, Tr(S, L), Lusk reports T, Tr(S, L)	
Washington: King County.....	Sales, appraisals	Sample				Yes	Q, C	
Wisconsin: Madison city..... Milwaukee city.....	Sales Sales	Sample All		Yes		Yes	Tr(S), title company records T, Tr(S), abstract files	

Explanation of codes used in copy is as follows:

- C - correspondence
- P - personal interview
- Q - questionnaire
- T - telephone
- Tr(L) - documentation, local transfer tax
- Tr(S) - documentation, State transfer tax

<sup>1</sup>Study encompasses sales of owner-occupied single-family residences only.<sup>2</sup>Content and interval of study currently under review.

**Table 14. Categories of Sales or Other Transfers Excluded From Ratio Studies Conducted by Selected Local Jurisdictions**

Jurisdiction	Specified status or relationship of, or between grantor and/or grantee				Transfers of convenience	Foreclosure or other such legal action <sup>1</sup>	Miscellaneous categories		
	Relatives	Corporate connection	Nonprofit organization						
			Unit of government	Religious or charitable	Other				
Alabama:									
Madison County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Arizona:									
Maricopa County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
California:									
Alameda County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes Trades, multiparcel sales		
Fresno County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Kern County.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Orange County.....	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes Equity sales		
Riverside County.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Sacramento County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
San Bernardino County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
San Diego County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
San Mateo County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Sales of properties altered after date of sale		
Santa Clara County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Sales by decrees of distribution		
Santa Cruz County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Colorado:									
Denver County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Jefferson County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Connecticut:									
Bridgeport city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Hartford city.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Certain transfers involving banks		
District of Columbia:									
Washington city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Florida:									
Broward County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Jacksonville-Duval County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )		
Georgia:									
Chatham County.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Fulton County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Muscogee County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Illinois:									
Cook County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Winnebago County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Iowa:									
Des Moines city.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Louisiana:									
Caddo Parish.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Maine:									
Portland city.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Michigan:									
Detroit city.....	Yes	Yes	Yes	Yes	Yes	Yes	Transfers subject to unknown mortgage or land contract balances. Sales involving property altered physically after determination of assessed value, but before date of sale.		
Flint City.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Deeds recorded after satisfaction of land contracts.		
Grand Rapids city.....	Yes	( <sup>2</sup> )	Yes	Yes	Yes	Yes	Yes		
Lansing City.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Minnesota:									
Hennepin County.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	No	Yes ( <sup>2</sup> )		
Minneapolis city.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
St. Louis County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Sales involving property altered physically after determination of assessed value, but before date of sale. Sales involving gifts of property, where gifts are not specified as to amount.		
Missouri:									
Kansas City city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Nebraska:									
Douglas County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes ( <sup>2</sup> )		
Lancaster County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
New York:									
New York City city.....	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	Sales deemed not significant		
North Carolina:									
Mecklenburg County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		
Ohio:									
Franklin County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes ( <sup>2</sup> )		

See footnotes at end of table.

Table 14. Categories of Sales or Other Transfers Excluded From Ratio Studies Conducted by Selected Local Jurisdictions—Continued

Jurisdiction	Specified status or relationship of, or between grantor and/or grantee					Transfers of convenience	Foreclosure or other sales or legal action <sup>1</sup>	Miscellaneous categories			
	Relatives	Corporate connection	Nonprofit organization								
			Unit of government	Religious or charitable	Other						
Oregon:											
Lane County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	17 separate types			
Multnomah County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	17 separate types			
Rhode Island:											
Providence city.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Texas:											
Fort Worth city.....	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	Sales involving loan assumptions			
Wichita Falls city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )			
Virginia:											
Arlington County.....	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Fairfax County.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Hampton city.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Richmond city.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Washington:											
King County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Sales in each of 37 categories, unless verified as usable			
Wisconsin:											
Madison city.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )			
Milwaukee city.....	Yes	Yes	Yes	( <sup>4</sup> )	( <sup>4</sup> )	Yes	Yes	Sales of partial interests, satisfactions of land contracts; sales of taverns, trades			

<sup>1</sup>Includes tax sales, and (in Caddo Parish, Louisiana) repossession sales.<sup>2</sup>Relevance, if any, not indicated by data obtained.<sup>3</sup>General rule is that all sales are of possible use, subject to evaluation.<sup>4</sup>Analysis conditions acceptance or rejection.

**Table 15. Statistical Measures Derived by Selected Local Jurisdictions as Part of Ratio Studies**

Jurisdiction	Mean ratio	Median ratio	Ratio of aggregate amounts	Coefficient of intra-area dispersion from ratio indicated	Coefficient of interarea dispersion	Frequency distribution	Index of regressive assessment (price related differential)	Standard deviation	Standard error
Alabama:									
Madison County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Arizona:									
Maricopa County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Pima County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
California:									
Alameda County.....	Yes	Yes	( <sup>1</sup> )	Median and mean	Yes	Yes	( <sup>1</sup> )	Yes	Yes
Fresno County.....	Yes	Yes	( <sup>1</sup> )	Median	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Kern County.....	Yes	Yes	( <sup>1</sup> )	Mean	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Orange County.....	Yes	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Riverside County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Sacramento County.....	Yes	Yes	Yes	Median	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
San Bernardino County.....	Yes	Yes	Yes	Mean <sup>3</sup>	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
San Diego County.....	Yes	Yes	( <sup>1</sup> )	Median and mean	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )
San Mateo County.....	Yes	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Santa Clara County.....	Yes	Yes	Yes	Median	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Santa Cruz County.....	Yes	Yes	Yes	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes
Colorado:									
Denver County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Jefferson County.....	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Connecticut:									
Bridgeport city.....	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )
Hartford city.....	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
District of Columbia:									
Washington city.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Florida:									
Broward County.....	Yes	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Jacksonville-Duval County	Yes	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Georgia:									
Clayton County.....	Yes	Yes	Yes	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Fulton County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Muscogee County.....	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Illinois:									
Cook County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Mean	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Winnebago County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Iowa:									
Des Moines city.....	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Kentucky:									
Jefferson County <sup>4</sup> .....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Mean	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Louisiana:									
Caddo Parish.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Maine:									
Portland city.....	Yes	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Michigan:									
Detroit city.....	Yes	Yes	Yes	Median	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Flint city.....	Yes	( <sup>1</sup> )	Yes	Mean	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Grand Rapids city.....	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Lansing city.....	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Minnesota:									
Hennepin County.....	( <sup>1</sup> )	Yes	Yes	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Minneapolis city.....	Yes	Yes	( <sup>1</sup> )	Mean	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
St. Louis County.....	Yes	( <sup>1</sup> )	Yes	Mean	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Missouri:									
Kansas City city.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )

See footnotes at end of table.

Table 15. Statistical Measures Derived by Selected Local Jurisdictions as Part of Ratio Studies—Continued

Jurisdiction	Mean ratio	Median ratio	Ratio of aggregate amounts	Coefficient of intra-area dispersion, from ratio indicated	Coefficient of interarea dispersion	Frequency distribution	Index of regressive assessment (price related differential)	Standard deviation	Standard error
Nebraska:									
Douglas County.....	( <sup>1</sup> ) Yes	( <sup>1</sup> ) Yes	Yes Yes	( <sup>1</sup> ) Median	( <sup>1</sup> ) Yes	( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> ) Yes	( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> ) ( <sup>1</sup> )
Lancaster County.....									
New York:									
New York City city.....	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
North Carolina:									
Mecklenburg County.....	Yes	Yes	( <sup>1</sup> )	Median	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Ohio:									
Franklin County.....	( <sup>1</sup> )	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )
Oregon:									
Lane County.....	Yes	Yes	( <sup>1</sup> ) Yes	( <sup>1</sup> ) Mean	( <sup>1</sup> ) ( <sup>1</sup> )	Yes Yes	( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> ) ( <sup>1</sup> )	( <sup>1</sup> ) ( <sup>1</sup> )
Multnomah County.....				-					
Rhode Island:									
Providence city <sup>4</sup> .....	Yes	Yes	Yes	Median	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Texas:									
Fort Worth city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Wichita Falls city.....	Yes	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Virginia:									
Arlington County.....	Yes	Yes	Yes	Median	Yes	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Fairfax County.....	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Richmond city.....	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Hampton city.....	( <sup>5</sup> )	( <sup>5</sup> )	Yes	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )	( <sup>5</sup> )
Washington:									
King County.....	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	Yes
Wisconsin:									
Madison city.....	Yes	( <sup>1</sup> )	Yes	Mean	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )
Milwaukee city.....	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )	Yes	( <sup>1</sup> )	( <sup>1</sup> )	Yes	( <sup>1</sup> )

<sup>1</sup>Existence, if any, in local study not indicated by data obtained.<sup>2</sup>Applies to single-family, owner-occupied residences only.<sup>3</sup>On completion of program revision, coefficient of intra-area dispersion will be based on median ratio rather than mean ratio.<sup>4</sup>Measures shown refer to most recent study, completed in 1973. Change in administration occurred in Jefferson County (Kentucky) in December 1973; in Providence (Rhode Island), January 9, 1975.<sup>5</sup>Full spectrum of statistical measures (though not necessarily each of those specified) will be calculated locally when computerization of assessment system is complete.

Table 16. Purposes and Implementation of Ratio Studies Conducted by Selected Local Jurisdictions

Jurisdiction	Purpose					Implementation				
	Equalization of assessed values within county, city, or other unit	Accomplishment of reappraisal program objectives		Possibility for use in taxpayer appeals <sup>1</sup>	Use of findings likely to condition changes for individual assessed values in--					
		Selection of targets			Evaluation of reappraisal effectiveness	An entire jurisdiction	Individual use categories	Individual neighborhoods	Other intra-jurisdictional groupings	
		By area	By use category							
Alabama:										
Madison County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Arizona:										
Maricopa County.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	
California:										
Alameda County.....	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Fresno County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	Yes	
Kern County.....	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Orange County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Riverside County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Sacramento County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
San Bernardino County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
San Diego County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
San Mateo County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Santa Clara County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	Yes	
Santa Cruz County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Colorado:										
Denver County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Jefferson County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Connecticut:										
Hartford city.....	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
District of Columbia:										
Washington city.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Florida:										
Broward County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
Jacksonville-Daval County	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Georgia:										
Chatham County.....	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
Fulton County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Muscogee County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	
Illinois:										
Cook County.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Winnebago County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	
Iowa:										
Des Moines city.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Kentucky:										
Jefferson County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Louisiana:										
Caddo Parish.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Maine:										
Portland city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
Michigan:										
Detroit city.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Flint city.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Grand Rapids city.....	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Lansing city.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Minnesota:										
Hennepin County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	Yes	
Minneapolis city.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
St. Louis County.....	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
Missouri:										
Kansas City city.....	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	

See footnotes at end of table.

## STATE AND LOCAL RATIO STUDIES

Table 16. Purposes and Implementation of Ratio Studies Conducted by Selected Local Jurisdictions—Continued

Jurisdiction	Purpose					Implementation					
	Equalization of assessed values within county, city, or other unit		Accomplishment of reappraisal program objectives			Possibility for use in taxpayer appeals <sup>1</sup>	Use of findings likely to condition changes for individual assessed values in--				
	Selection of targets		Evaluation of reappraisal effectiveness				An entire jurisdiction	Individual use categories	Individual neighborhoods	Other intra-jurisdictional groupings	
	By area	By use category									
Nebraska:											
Douglas County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
Lancaster County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
New York:											
New York City city.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
North Carolina:											
Mecklenburg County.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Ohio:											
Franklin County.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Oregon:											
Lane County.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
Multnomah County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	Yes	Yes	
Rhode Island:											
Providence city.....	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Texas:											
Fort Worth city.....	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	
Wichita Falls city.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	
Virginia:											
Arlington County.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
Fairfax County.....	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes	Yes	Yes	Yes	( <sup>2</sup> )	
Hampton city.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	( <sup>2</sup> )	
Richmond city.....	Yes	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	Yes	Yes	( <sup>2</sup> )	
Washington:											
King County.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	Yes		( <sup>2</sup> )	
Wisconsin:											
Madison city.....	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	
Milwaukee city.....	Yes	Yes	Yes	Yes	( <sup>2</sup> )	Yes	( <sup>2</sup> )	Yes	Yes	( <sup>2</sup> )	

<sup>1</sup>Does not necessarily imply acceptance by the courts.<sup>2</sup>Relevance, if any, not indicated by data obtained.

## TRANSFER TAX CATEGORIES

Table 17. State Transfer Taxes and Recordation Requirements

State	Basis of tax or recordation requirement		Rate	Evidence of payment as shown (stamps, seal, etc.)	Penalty for false statement of value, etc. (fine and/or incarceration as shown)	Sales price display		Application
	Total sales price	Net sales price exclusive of mortgage or other liens				Type of documentation required, if any	All transfers	
Alabama.....	Yes	50 cents per \$500	Certification on document	( <sup>1</sup> )	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Arizona.....	No	\$2.00 per document	( <sup>1</sup> )	Guilty of misdemeanor	Affidavit			Yes
Arkansas.....	Yes	\$1.10 per \$1,000 <sup>2</sup>	Stamps	\$50 to \$100	None specified			Yes
California.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Colorado.....	Yes	1 cent per \$100 <sup>4</sup>	Imprinting on document	\$50 to \$500, 10 days to 3 months	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Connecticut.....	Yes	55 cents per \$500 <sup>2</sup>	Stamps	\$200 to \$500	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Delaware <sup>3</sup> .....	Yes	2 percent	Stamps	Up to \$500, up to 1 year	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
District of Columbia.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Florida.....	Yes, as to 30 cents per \$100	Yes, as to 55 cents per \$500	30 cents per \$100 plus 55 cents per \$500	Stamps	Guilty of misdemeanor	None specified	( <sup>1</sup> )	( <sup>1</sup> )
Georgia.....	Yes	\$1.00 per \$1,000 <sup>5</sup>	( <sup>1</sup> )	Guilty of misdemeanor	Declaration			Yes
Hawaii.....	Yes	5 cents per \$100 <sup>2</sup>	Imprinted seal	( <sup>1</sup> )	Certificate of conveyance			Yes
Illinois.....	Yes	50 cents per \$500 <sup>2</sup>	Stamps	Guilty of misdemeanor	Real estate transfer declaration			Yes
Indiana.....	Yes <sup>6</sup>	( <sup>4</sup> )	Stamps	( <sup>4</sup> )	None specified <sup>6</sup>	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Iowa.....	Yes	55 cents per \$500 <sup>4</sup>	Stamps	\$100 to \$500	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Kansas <sup>7</sup> .....	Yes <sup>7</sup>	( <sup>7</sup> )	( <sup>7</sup> )	Up to \$100 <sup>7</sup>	Certificate of value <sup>7</sup>			Yes
Kentucky.....	Yes	50 cents per \$500	Certification on document	Up to \$100, 30 days	Affidavit			Yes
Maine.....	Yes	55 cents per \$500	Stamps	( <sup>1</sup> )	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Maryland <sup>3</sup> .....	Yes	55 cents per \$500 plus 0.5 percent	Stamps	Up to \$500, 6 months	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Massachusetts.....	Yes	\$1.00 per \$500 <sup>2</sup> *	Stamps	\$500 to \$1,000, up to 1 year	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Michigan.....	Yes	55 cents per \$500 <sup>2</sup>	Stamps	Up to \$500, 1 year	Real estate transfer valuation affidavit*			Yes
Minnesota.....	Yes	\$1.10 per \$500 <sup>10</sup>	Stamps	Guilty of misdemeanor	Certificate of real estate value			Yes
Nebraska.....	Yes	55 cents per \$500	Stamps	None specified	Real estate transfer statement	Yes		
Nevada.....	Yes	55 cents per \$500 <sup>2</sup>	Imprinting on document	Guilty of misdemeanor	Declaration of value			Yes
New Hampshire....	Yes	15 cents per \$100 <sup>2</sup>	Stamps	Guilty of misdemeanor	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
New Jersey.....	Yes	50 cents per \$500 <sup>2</sup>	Imprinting on document	Adjudged disorderly person	Affidavit of consideration	Yes		
New York <sup>3</sup> .....	Yes	55 cents per \$500 <sup>2</sup>	Stamps	Up to \$5,000, 1 year	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
North Carolina.....	Yes	50 cents per \$500	Stamps	\$100 to \$1,000	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Ohio.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Oklahoma.....	Yes	55 cents per \$500 <sup>2</sup>	Stamps	None specified	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Pennsylvania <sup>3</sup> ....	Yes	1 percent	Stamps	Up to \$500, 90 days	Affidavit			Yes
Rhode Island....	Yes	55 cents per \$500 <sup>2</sup>	Stamps	None specified	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
South Carolina.....	Yes	\$1.00 per \$500 <sup>2</sup>	Stamps	\$20 to \$100	Affidavit			Yes
South Dakota.....	Yes	50 cents per \$500	Imprinting on document	Up to \$50	Affidavit			Yes
Tennessee.....	Yes	26 cents per \$100	Imprinting on document	Penalty for perjury	Statement under oath on face of instrument			Yes
Vermont.....	Yes	Half of 1 percent, plus 15 cents per \$100	Entry on return	10 to 25 percent of amount due	Property transfer return	Yes		
Virginia <sup>3</sup> .....	Yes	50 cents per \$500 <sup>2</sup>	Not specified	None specified	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Washington <sup>3</sup> ....	Yes	50 cents per \$500 <sup>2</sup>	Stamps	Gross misdemeanor	None specified	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
West Virginia <sup>3</sup> ..	Yes	\$1.10 per \$500	Stamps	\$100 to \$1,000, up to 5 years	Declaration of consideration or value			Yes
Wisconsin.....	Yes	10 cents per \$100 <sup>2</sup>	Entry on document	Up to \$1,000, up to 1 year	Real estate transfer return	Yes		

<sup>1</sup>Relevance, if any, not indicated by data obtained.<sup>2</sup>Transfers under \$100 are exempt.<sup>3</sup>Local governments levy, or have the option to levy, transfer taxes in California, Delaware, District of Columbia, Maryland, New York, North Carolina, South Carolina, Virginia, Washington, and West Virginia. See Table 18.<sup>4</sup>Transfers of \$500 or less are exempt.<sup>5</sup>Up to \$500 for the first \$1,000 on first \$1,000 and cents for each additional \$1,000.<sup>6</sup>On proceeds of sale of real property applicable only to those properties subject to gross income tax.<sup>7</sup>Rate declines annually until tax is completely phased out in 1992.<sup>8</sup>Kansas does not have a transfer tax. Entries for that State refer to recordation requirements.<sup>9</sup>Rate is \$2.20 on first \$1,000.<sup>\*</sup>In practice, sales price available to assessor on voluntary basis only.

## STATE AND LOCAL RATIO STUDIES

Table 18. Transfer Taxes and Recordation Requirements of Local Jurisdictions

Area	Basis of tax	Rate	Transfer tax payment evidenced as specified	Sales price display			Penalties (for false statement, etc.), fines and/or incarceration as indicated	
				Documentation required, if any	Application			
					All transfers	All excluding specified exceptions		
California: Counties, optional...	Net sales price <sup>1</sup>	55 cents per \$500 <sup>2</sup>	Declaration on face of deed or other instrument	Declaration on face of deed or other instrument			Yes Penalty for perjury	
Delaware: Wilmington.....	Sales price	1 percent	Stamps	None specified	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	
District of Columbia: Washington.....	Sales price	0.5 percent <sup>4</sup>	Stamps or other devices authorized	Recordation tax return	Yes		Up to \$1,000, one year	
Maryland: Specified counties and Baltimore city <sup>5</sup> .	Sales price	( <sup>6</sup> )	Stamps	None specified	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> ) Up to \$500, up to 6 months	
New York: New York City.....	Net sales price	1 percent <sup>6</sup>	Not specified	Affidavit (tax return)	Yes		Up to \$1,000, up to 1 year	
Ohio: Counties.....	Sales price <sup>7</sup>	10 cents per \$100 <sup>7</sup>	Receipt (part of statement of value)	Real property conveyance fee statement of value	*Yes		\$100 to \$1,000, up to 6 months	
Pennsylvania: Local governments <sup>8</sup> ...	Sales price	1 percent	As provided by ordinance or resolution	None specified	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> ) "Reasonable penalty" as provided locally	
South Carolina: Counties.....	Sales price <sup>1</sup>	55 cents per \$500	Notation on deed	None specified	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> ) Not specified	
Virginia: Counties and cities..	Sales price	1/3 of State (basic) recordation tax (hence 5 cents per \$100)	As locally provided	None specified	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> ) Not specified	
Washington: Counties.....	Sales price <sup>10</sup>	Not exceeding 1 percent <sup>10</sup>	Stamps or imprint	Affidavit			Yes Tax and any penalties become lien on property	
West Virginian: Counties.....	Sales price	55 cents per \$500	Stamps	Declaration of consideration or value			Yes \$100 to \$1,000, up to 5 years	

Note: "Sales price" means full amount of consideration, "net sales price" means sales price minus amount represented by assumed mortgages.

<sup>1</sup>Transfers of \$100 or less are exempt.

<sup>2</sup>Any city within a county levying the tax may impose a city transfer tax at a rate one-half that of the county. City tax becomes a credit against county tax.

<sup>3</sup>Information not indicated by data obtained.

<sup>4</sup>Minimum tax \$1.

<sup>5</sup>Local rates as follows: \$1.10 per \$500 - Allegany, Anne Arundel, Baltimore, Dorchester, Garrett, Montgomery, St. Mary's, Wicomico Counties; \$1.65 per \$500 - Baltimore city and Calvert, Caroline, Charles, Kent, Queen Annes, and Worcester Counties; \$2.75 per \$500 - Harford County.

<sup>6</sup>Tax applies only where consideration exceeds \$25,000.

<sup>7</sup>Minimum basic tax \$1. Counties may levy additional tax of up to 30 cents per \$100.

<sup>8</sup>But no sales price need be disclosed when transfer is exempt from tax.

<sup>9</sup>Local governments include cities, boroughs, towns, townships, and school districts of specified classes.

<sup>10</sup>A credit for amount of tax paid on transfer of single-family residence is applicable to tax due on subsequent transfer of the property within 9 months.

## APPENDIX A

### STATE LEGAL STANDARDS FOR PROPERTY ASSESSMENT

Table 1. Legal Basis for Assessed Value of Realty, by State: 1975

State	Basis
Alabama.....	Fair and reasonable market value. Effective in 1972, the following percentages thereof apply for the types of realty indicated: Class 1, utilities used in business--30 percent (except in eight counties, where the level is 35 percent). Class 2, property not otherwise classified--25 percent. Class 3, agricultural, forest, and residential--15 percent.
Alaska.....	Full and true value.
Arizona.....	Full cash value. Effective January 1, 1974, the following percentages apply for the types of realty indicated: Class 1, flight property, railroads, producing mines--60 percent. Class 2, property of other public utilities--50 percent. Class 3, commercial and industrial property--27 percent. Class 4, all agricultural realty--18 percent. Class 5, residential--15 percent.
Arkansas.....	20 percent of true and full or actual value.
California.....	25 percent of fair market value, or of authorized alternate value standard prescribed by State constitution, or by constitutionally authorized statute, and implemented accordingly (e.g., special provisions for property owned by a local government but located elsewhere). Fair market value or its authorized alternate is known as "full value." See Appendix A, table 3.
Colorado.....	30 percent of actual value.
Connecticut.....	Not exceeding 100 percent of true and actual or fair market value. A 1974 law (effective May 30) provides that all municipalities must assess at a uniform rate of 70 percent of present true and actual value, adopting same no later than close of next required revaluation. Revaluation is required once every 10 years.
Delaware.....	True value in money.
District of Columbia...	Full and true value in lawful money.
Florida.....	Full cash value ("...just valuation..." per State constitution).
Georgia.....	40 percent of fair market value, effective January 1, 1973.
Hawaii.....	70 percent of fair market value.
Idaho.....	20 percent of market value.
Illinois.....	Fair cash value, which is 50 percent of actual value, except in counties of 200,000 or more which classify property (effective 1971). In any county which classifies, the highest classification may not be more than 2-1/2 times the lowest classification.
Indiana.....	Just valuation, defined by State as 33-1/3 percent of true cash value.
Iowa.....	As of January 1, 1975, 100 percent of actual value. Prior standard, 27 percent of actual value.

See footnotes at end of table.

Table 1. Legal Basis for Assessed Value of Realty, by State: 1975—Continued

State	Basis
Kansas.....	30 percent of fair market value in money.
Kentucky.....	Fair cash value.
Louisiana.....	Actual cash value, but each parish authority fixes its assessment level based thereon. New constitution provides for assessment at the following percentages of fair market value, for classifications of property as specified, effective January 1, 1978: Land--10 percent of fair market value. Improvements for residential purposes--10 percent of fair market value. Agricultural, horticultural, marsh and timber land--10 percent of use value. Other property--15 percent of fair market value.
Maine.....	Just value.
Maryland.....	Full cash value, i.e., current value less an allowance for any inflation that exists.
Massachusetts.....	Fair cash valuation.
Michigan.....	50 percent of true cash value.
Minnesota.....	Percentages of market value, as shown (dollar amounts refer to market value): Homestead--agricultural, first \$12,000 <sup>1</sup> at 20 percent; excess at 33-1/3 percent. Nonagricultural, first \$12,000 <sup>1</sup> at 25 percent; excess at 40 percent. Of paraplegic or blind veteran, first \$24,000 <sup>1</sup> at 5 percent; excess at 33-1/3 percent if agricultural, 40 percent if nonagricultural. Housing for elderly, others of specified incomes, financed under Title II of National Housing Act, or by Minnesota Housing Finance Agency; for 15 years from construction or rehabilitation, land at 40 percent; structures (in cities, population 10,000 or more, at 20 percent; less than 10,000, at 5 percent). Nonhomestead--agricultural, at 33-1/3 percent. Residential, at 40 percent. Apartments, with specified fire resistant materials, 5 stories or more, at 25 percent; 4 stories or less, at 33-1/3 percent. Realty for seasonal or temporary use, per days of use in preceding year--200 days or less, at 33-1/3 percent; more than 200 days, at 43 percent. Timberland, at 20 percent. Tools, implements and machinery affixed to public utility realty, at 33-1/3 percent. Parking ramp structures in first class cities of 400,000 population or less, in 1975, at 36 percent; in 1977, at 43 percent. Petroleum refineries, at 43 percent. Unmined iron ore, at 50 percent. "Low recovery" iron ore, at 30 to 43-1/2 percent. All other realty (including commercial, industrial, public utility), at 43 percent.
Mississippi.....	Cash value ("...in proportion to its value..." per State constitution).

See footnotes at end of table.

Table 1. Legal Basis for Assessed Value of Realty, by State: 1975—Continued

State	Basis
Missouri.....	Effective December 31, 1974, 33-1/3 percent of true value in money.
Montana.....	Percentages of full cash value, as shown: Realty, except as otherwise provided, at 30 percent. <sup>2</sup> New industrial property, as specified, including pollution control facilities, at 7 percent. <sup>2</sup> Property of electric and telephone cooperatives, at 7 percent. Owner-occupied residence (including affixed mobile home) of a totally disabled veteran, at 7 percent. <sup>2</sup> Widows, widowers, specified retired persons, at 15 percent (up to market value of \$27,500). Energy saving realty, at annual rates increasing from 6 percent to 30 percent. <sup>2</sup> <sup>3</sup> Operating property of public utilities, and all property not defined in other separate classifications, at 40 percent. <sup>2</sup>
Nebraska.....	35 percent of actual value.
Nevada.....	35 percent of full cash value.
New Hampshire.....	Full and true value in money.
New Jersey.....	True value. Taxable value is that percentage of true value, not lower than 20 percent or higher than 100 percent (the particular level being a multiple of 10), as is established by each county board of taxation.
New Mexico.....	Taxable value not to exceed 33-1/3 percent of value.
New York.....	Full value.
North Carolina.....	True value in money.
North Dakota.....	50 percent of true and full value (for most property).
Ohio.....	Taxable value, not to exceed 50 percent of true value in money.
Oklahoma.....	Not greater than 35 percent of fair cash value for the highest and best use for which such property was actually used, or was previously classified for use, during the calendar year next preceding the first day of January on which the assessment is made.
Oregon.....	100 percent of true cash value, i.e., market value as of assessment date.
Pennsylvania.....	Actual value; but in fourth to eighth class counties, not to exceed 75 percent of actual value.
Rhode Island.....	Full and fair cash value, or a uniform percentage not exceeding 100 percent.
South Carolina.....	True value in money.
South Dakota.....	60 percent of true and full value in money.
Tennessee.....	Classification, effective January 1, 1973: Public utilities..... 55 percent Industrial and commercial..... 40 percent Farm and residential..... 25 percent
Texas.....	True and full value in money ("...in proportion to its value..." and never at a value "greater than its fair cash value..." per State constitution).

See footnotes at end of table.

Table 1. Legal Basis for Assessed Value of Realty, by State: 1975—Continued

State	Basis
Utah.....	30 percent of reasonable fair cash value.
Vermont.....	Listed value which is 50 percent of appraisal value (the latter is fair market value).
Virginia.....	Fair market value.
Washington.....	100 percent of true and fair value in money, effective January 1, 1974.
West Virginia .....	True and actual value, but four classes of property, each subject to a specified rate limit as follows, amounts per \$100 of assessed value: I (personalty)--50 cents. II (owner-occupied residential property, including farms)--\$1.00. III (all property outside municipalities, other than I and II)--\$1.50. IV (all property inside municipalities, other than I and II)--\$2.00.
Wisconsin.....	Full value which could ordinarily be obtained for the property at private sale.
Wyoming.....	Fair value in conformity with values and procedures prescribed by State Department of Revenue.

<sup>1</sup>Particular amounts in effect as of January 1, 1975. Annual adjustment via index to occur with implementation of 1975 legislative action.

<sup>2</sup>Assessed value at 40 percent of legal standard specified, by statute beginning in 1975 (formerly by regulation).

<sup>3</sup>Effective July 1, 1975.

Table 2. Legal Basis for Assessed Value of Selected Classes of Tangible Personal Property,  
by State: 1975

State <sup>1 2</sup>	Basis <sup>1</sup>
Alabama.....	Basically, percentages of fair and reasonable value in three classes, same as for realty (see table C). Stocks of goods of merchants at not less than 60 percent of fair and reasonable value of the average amount of goods held during 12 months next preceding October 1.
Alaska.....	Full and true value same as realty. Business inventories may be assessed on basis of average monthly value or value as of January 1.
Arizona.....	Five classes of personal property, same as realty, with levels at 15 percent to 60 percent of market value (see Appendix A, table 1).
Arkansas.....	20 percent of usual selling price or average value (equivalent as to specified types of personality, to true and full or actual value).
California.....	25 percent of fair market value, except aircraft (assessed at fair market value), other minor exceptions.
Colorado.....	Unless otherwise specified, 30 percent of actual value. Stocks of merchandise at 5 percent of actual value. Livestock at 13 percent of actual value, 1974, thereafter adjusted by length of time owned.
Connecticut.....	Not to exceed 100 percent of true and actual or fair market value, but unless otherwise provided, at 70 percent of same, no later than at close of next revaluation.
Florida.....	Full cash value, same as realty, except inventories, assessed at 25 percent of just valuation.
Georgia.....	40 percent of fair market value, same as realty. Motor vehicles in dealers' inventories assessed at 75 percent of the assessed value for other motor vehicles.
Idaho.....	20 percent of market value, same as realty. Personality coming into State April 1 and after, at fractions of full assessed value.
Illinois.....	Fair cash value, i.e., 50 percent of actual value, same as realty.
Indiana.....	33-1/3 percent of market value, same as realty.
Iowa.....	Actual value, same as realty, effective January 1, 1975 (as to inventory or goods in bulk, market value as such, not retail or unit price).
Kansas.....	30 percent of fair market value, same as realty.
Louisiana.....	Actual cash value, same as realty, until 1978. Stocks of merchandise at average inventory value. Plants and storage bases engaged in utilization of waste material assessed at 25 percent of actual value until December 31, 1980.
Maryland.....	Personal property assessed at full cash value, without allowance for inflation (unlike realty). Stock in trade assessed on basis of lower of cost or market.
Michigan.....	50 percent of true cash value, same as realty.

See footnotes at end of table.

**Table 2. Legal Basis for Assessed Value of Selected Classes of Tangible Personal Property,  
by State: 1975—Continued**

State <sup>1</sup> <sup>2</sup>	Basis <sup>1</sup>
Minnesota.....	Percentages of market value, as specified: Structures on leased public lands, rural areas; tools, implements, and machinery affixed to public utility personality; leased agricultural realty on leased land—all at 33-1/3 percent. Structures on leased public lands, urban areas and on railroad rights-of-way; all other realty on exempt land; utility systems; billiards, signs, and devices—all at 43 percent. Mobile homes; also owner-occupied residences on leased land—classification, as to homestead and value components, that apply to corresponding residential realty.
Missouri.....	Effective December 31, 1974, assessed at 33-1/3 percent of true value in money, same as realty.
Montana.....	Percentages of full cash (or true and full) value, as follows: Agricultural and other tools, implements, and machinery, vehicles of all kinds (except mobile homes), at 20 percent. Livestock, stocks of merchandise of all sorts (including mobile homes held by dealers or distributors) and furniture and fixtures, at 33-1/3 percent. Effective July 1, 1975, however, business inventories are to be assessed at 7 percent of true and full value.
Nebraska.....	35 percent of actual value, same as realty.
Nevada.....	35 percent of full cash value, same as realty.
New Jersey.....	Depreciable personal property used in business assessed at not less than 20 percent of original cost to taxpayer. Other business personal property assessed at 50 percent of its fair value. Personality of telegraph, telephone and messenger companies assessed on average ratio basis.
New Mexico.....	Taxable value, set at 33-1/3 percent of full value, same as realty. Personal property inventories, as follows: Compute average acquisition cost on basis of end-of-month amounts. Deduct 85 percent of the average for excise taxes, losses, transportation, other specified expenses.
North Dakota....	50 percent of full and true value in money, same as realty.
Ohio.....	Certain merchants and manufacturers personality: 1974 and thereafter—45 percent of true value in money. Certain other personality of merchants: 1974—58 percent of true value in money. 1975—54 percent of true value in money. 1976 and thereafter—50 percent of true value in money. Machinery of electric power plants—100 percent of true value in money. Tools and machinery used in manufacturing, mining, laundering, dry cleaning, radio and TV broadcasting; specified personality of rural electric companies, 50 percent of true value in money. Tangible personality not otherwise classified—50 percent of true value in money.
Oklahoma.....	35 percent of fair cash value, except stocks of goods assessed on basis of certain average values.

See footnotes at end of table.

**Table 2. Legal Basis for Assessed Value of Selected Classes of Tangible Personal Property,  
by State: 1975—Continued**

State <sup>1</sup> <sup>2</sup>	Basis <sup>1</sup>
Oregon.....	100 percent of true cash value, same as realty, except that taxable ships and vessels with Oregon as home port registry are assessed at 40 percent of true cash value; those in intercoastal or foreign trade are assessed at 4 percent of true cash value.
South Carolina..	True value in money, same as realty except that property of merchants and manufacturers is assessed at 9-1/2 percent of true value in money since 1972.
South Dakota....	60 percent of true and full value in money, same as realty.
Tennessee.....	Tangible personality, percentages of actual value: Public utilities--55 percent. Commercial and industrial--30 percent. Other--5 percent.
Utah.....	30 percent of reasonable fair cash value, same as realty.
Vermont.....	50 percent of appraisal value (the latter is fair market value), same as realty.
Washington.....	100 percent of true and fair value in money, same as realty, except as follows: Animals, birds, insects, crops at percentages of true and fair value declining from 75 percent in 1975 to zero in 1983. Equivalent phasing out applicable to business inventories, effective 1974, via 10 percent tax credit, exemption 1983.
West Virginia...	True and actual value, but four classes of property, same as realty, each subject to a specified rate limit.
Wisconsin.....	True cash value, but subject to property tax offsets that reduce tax otherwise paid.

<sup>1</sup>In the following States, and the District of Columbia, the legal basis specified in Appendix A, table 1, for realty also applies to tangible personality: District of Columbia, Kentucky, Maine, Massachusetts, Mississippi, New Hampshire, North Carolina, Oregon, Rhode Island, Texas, Virginia, Wyoming.

<sup>2</sup>The following States do not tax tangible personality: Delaware, Hawaii, New York, Pennsylvania. Several States exempt entire classes of tangible personality, or portions thereof. For a summary as of 1974, see Property Values Subject to Local General Property Taxation in the United States: 1973, State and Local Government Special Studies No. 69, U.S. Department of Commerce, Bureau of the Census, December 1974, table K, pp. 16, 17.

**Table 3. Provisions for Assessment of Property for Agricultural, Open Space, and Associated Explicit Uses, by State: 1975**

State	Provisions affecting assessed value applicable to explicitly specified uses	Remarks
Alaska.....	Deferred taxation	
Arkansas.....	Use value assessment only	
California....	Use value assessment only..	Basis for "full value" of owner-occupied land zoned and exclusively used for single-family residential or agricultural purposes; and for parcels of 10 or more acres each, used for 2 or more years for nonprofit golf course purposes (value of any mines or minerals involved is added).
	Contracts and agreements...	Basis for "full value" of open space land subject to specified restrictions and uses.
Colorado.....	Use value assessment only..	In addition to minimum of 2 preceding years in present use, land must be so classified for 10 preceding years, per legislation effective January 1, 1972. Use value based on productive capacity.
Connecticut...	Use value assessment only (sometimes classified as deferred taxation, because of conveyance tax cited)..	Farm, forest open space land sold within 10 years of initial acquisition subject to conveyance tax ranging from 10 percent of sales price if sold in first year to 1 percent thereof in 10th year. Effective October 1, 1972. Forest land, 25-acre minimum.
Delaware.....	Use value assessment only..	Use must be successive, for 2 previous years. Area of land must be not less than 5 acres.
Florida.....	Use value assessment only..	} A sale price three or more times an agricultural use assessed value creates presumption that land is <u>not</u> used primarily for bona fide agricultural purposes.
Contracts and agreements...		
Hawaii.....	Deferred taxation	
Contracts and agreements...		
Illinois.....	Deferred taxation.....	Effective only in counties of more than 200,000 population, and subject to a minimum of 3 preceding years in benefited use, effective August 19, 1971. Property must be more than 10 acres in area.

See footnotes at end of table.

**Table 3. Provisions for Assessment of Property for Agricultural, Open Space, and Associated Explicit Uses, by State: 1975—Continued**

State	Provisions affecting assessed value applicable to explicitly specified uses	Remarks
Indiana.....	Use value assessment only	
Iowa.....	Use value assessment only..	Productivity, net earning capacity, market value for agricultural use constitute valuation basis.
Kentucky.....	Deferred taxation	
Louisiana.....	Use value assessment only..	10 percent of use value, effective January 1, 1978.
	Contracts and agreements...	Agreements refer to reforestation contracts.
Maine.....	Deferred taxation.....	In addition, a tree growth tax, effective June 9, 1972, provides for productivity based assessment, at specified value levels, for forest land exceeding 500 acres.
Maryland.....	Deferred taxation.....	Easements to a government, or to The Nature Conservancy, mean valuation which reflects the limitation on use.
	Contracts and agreements...	
Massachusetts.	Deferred taxation.....	5-acre minimum. Minimum of 2 immediately preceding years in benefited use.
Michigan.....	Contracts and agreements...	State-financed, also related to household income (circuit breaker type) effective 1974. 10-year agreements.
Minnesota.....	Deferred taxation.....	Does not apply to land within specified distance from a lake shore.
Montana.....	Deferred taxation.....	Effective February 28, 1974, can meet any of following conditions: (1) Actually devoted to agriculture, 1971 to 1973, and thereafter. (2) Areas not less than 5 acres, and gross value of crops at least \$1,000 annually. (3) Land produces at least 15 percent of owner's income.
Nebraska.....	Deferred taxation.....	If eligibility ends, deferred tax on any difference in values for 5 years plus interest at 6 percent, law effective July 12, 1974.
New Hampshire.	Deferred taxation Contracts and agreements...	Effective 1973.
New Jersey....	Deferred taxation	
New Mexico....	Use value assessment only..	Basis: Land's capacity to produce agricultural products.

See footnotes at end of table.

**Table 3. Provisions for Assessment of Property for Agricultural, Open Space, and Associated Explicit Uses, by State: 1975—Continued**

State	Provisions affecting assessed value applicable to explicitly specified uses	Remarks
New York.....	Deferred taxation Contracts and agreements...	Applicable to agricultural, forest land. Minimum size specified for each.
North Carolina	Deferred taxation.....	Effective January 1, 1974, applies to parcels 10 acres or more, and gross income from products grown therein must average \$1,000 or more annually for 3 preceding years.
North Dakota..	Use value assessment only..	Applies to land annexed to a municipality. Any such land, platted or not, classified as agricultural prior to annexation, must be retained in that classification after annexation until use of land changes. Value must be uniform with that of adjoining agricultural land not annexed. Effective July 1, 1973.
Ohio.....	Deferred taxation.....	Effective July 26, 1974, 30-acre minimum, agricultural use 3 preceding years minimum. Deferred taxation applies on partial basis.
Oklahoma.....	Use value assessment only..	See Appendix A, table 1.
Oregon.....	Use value assessment only Deferred taxation.....	Deferred taxation does not apply if the specified use is the zoned use.
Pennsylvania..	Contracts and agreements...	Existing law: 5-year agreements. Additional (not substitute) new law effective January 1, 1976: 7-year agreements, farm and/or forest land, 10 acres or more, in benefited use 3 preceding years, anticipated annual gross income \$2,000.
Rhode Island..	Deferred taxation	
South Dakota..	Use value assessment only	
Texas.....	Deferred taxation	
Utah.....	Deferred taxation.....	
Vermont.....	Use value assessment only Contracts and agreements	
Virginia.....	Deferred taxation.....	
Washington....	Deferred taxation Contracts and agreements	Specified use assessments result from exercise of local option by local governments.

See footnotes at end of table.

**Table 3. Provisions for Assessment of Property for Agricultural, Open Space, and Associated Explicit Uses, by State: 1975—Continued**

State	Provisions affecting assessed value applicable to explicitly specified uses	Remarks
Wisconsin.....	See remarks.....	Constitutional amendment, approved April 2, 1974: Taxation of agricultural and undeveloped land need not be uniform with that of each other or with that of other realty.
Wyoming.....	Use value assessment only..	Law prohibits any reduction before 1977 in assessed value of agricultural land, below the average assessed value for such land in the county in 1971 and 1972. Minimum of 2 previous years in benefited use.

Terms (based on review of applicable legal provisions):

Deferred taxation--Change from benefited (explicitly specified) use activates tax on value differences, for specified time periods, plus any interest specified.

Contracts and agreements--Agreements providing for limitations on use over specified time periods, as part of explicitly specified use value assessment determination.



## APPENDIX B

### SELECTED REFERENCES

#### **Part 1. Official Recurring Reports (From State Government Agencies Unless a Local Government Source Is Specified)**

Note: Reports are not necessarily limited to ratio study coverage. Latest report is listed. Frequency annual unless otherwise indicated.

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